Excavating Engineer

founded 1905

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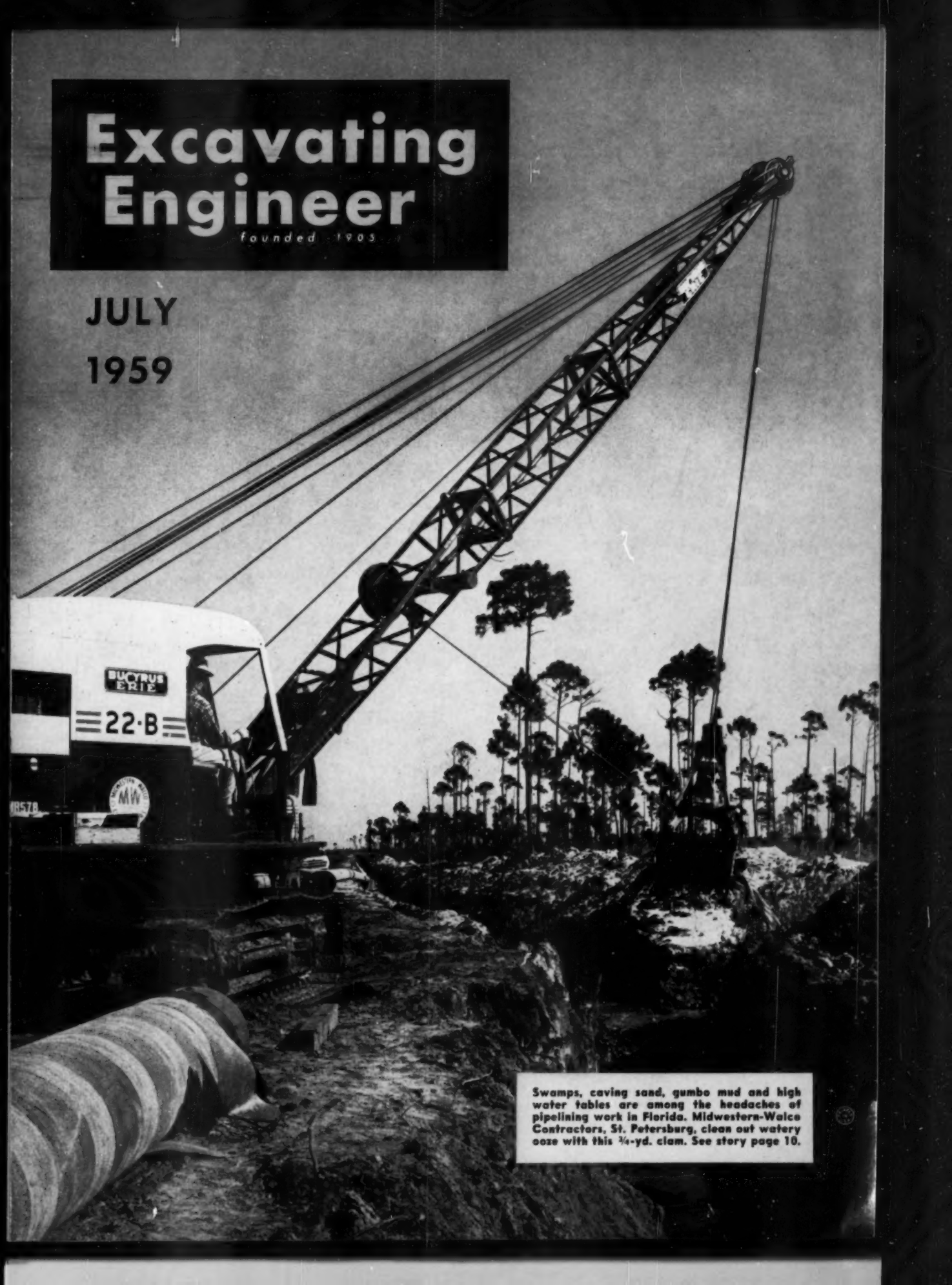

Swamps, caving sand, gumbo mud and high water tables are among the headaches of pipelining work in Florida. Midwestern-Walco Contractors, St. Petersburg, clean out watery ooze with this ¾-yd. clam. See story page 10.

Dad looked me straight in the eye and said....

"Son, the first thing you learn in this business is to use good equipment. Take those Bucyrus-Erie cranes. I've used them for years. Mind you, not just because your grandfather used 'em, but because I found out for myself that they can help me make money and keep my business *growing*. Chances are you'll find that out too, the first day you put on a tin hat and learn to run one."

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Bryan Carl, Partner, Dean Word Co., New Braunfels, Texas

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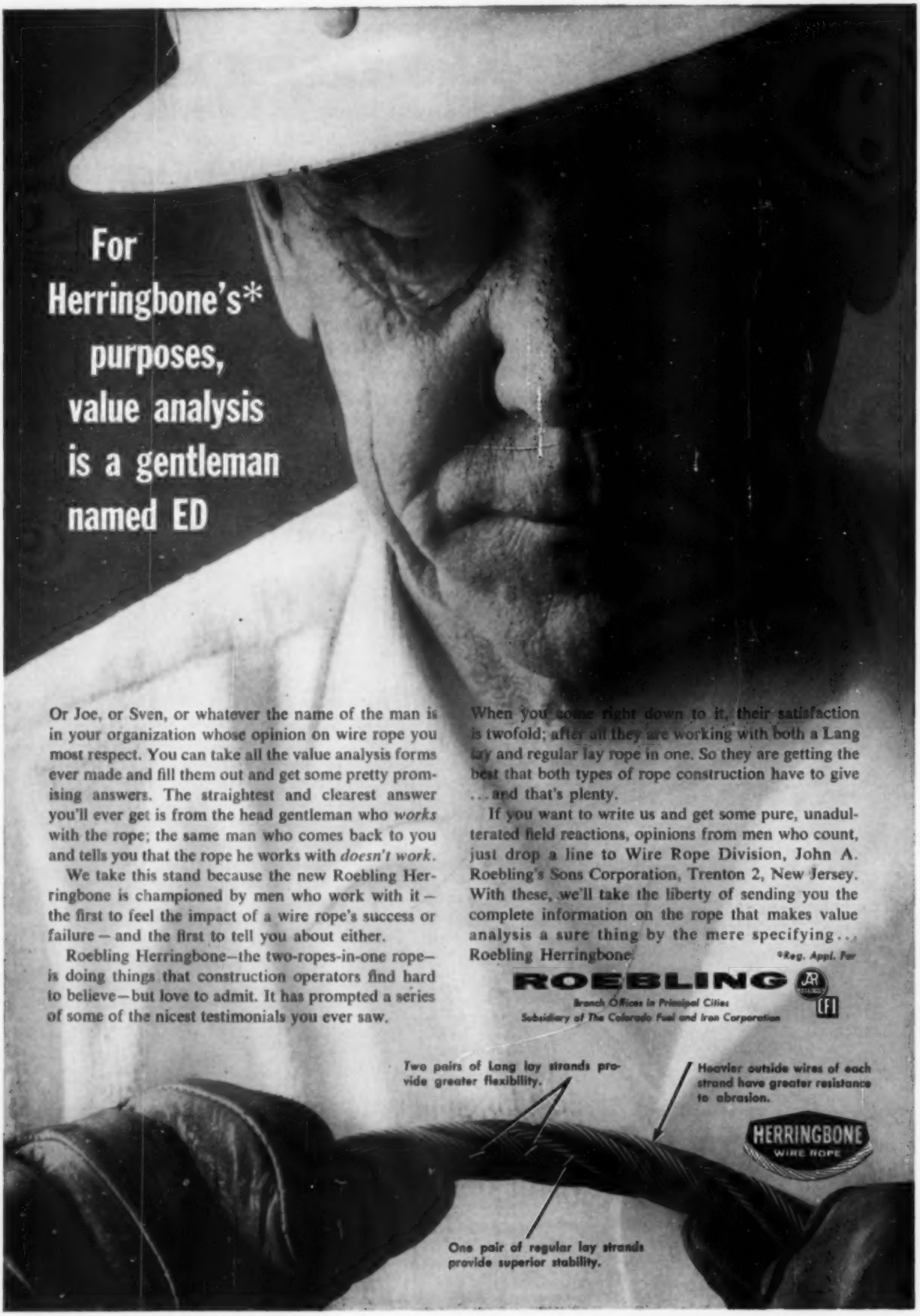
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Excavating Engineer

founded 1905

South Milwaukee, Wisconsin

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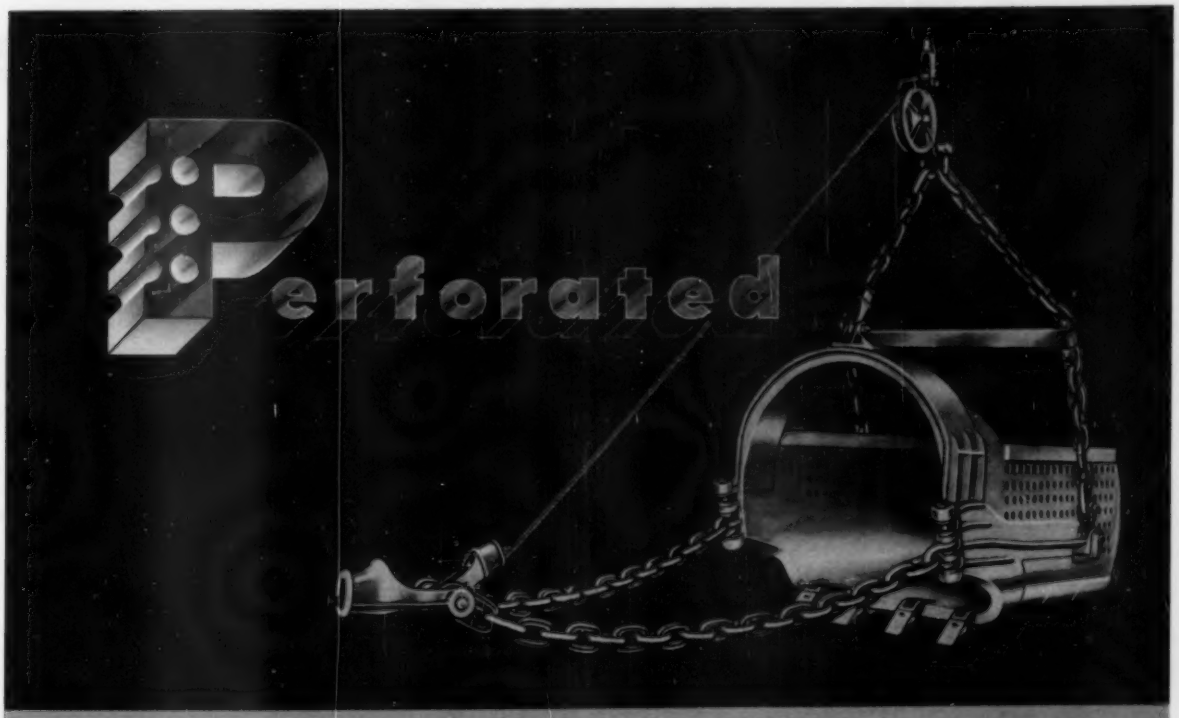

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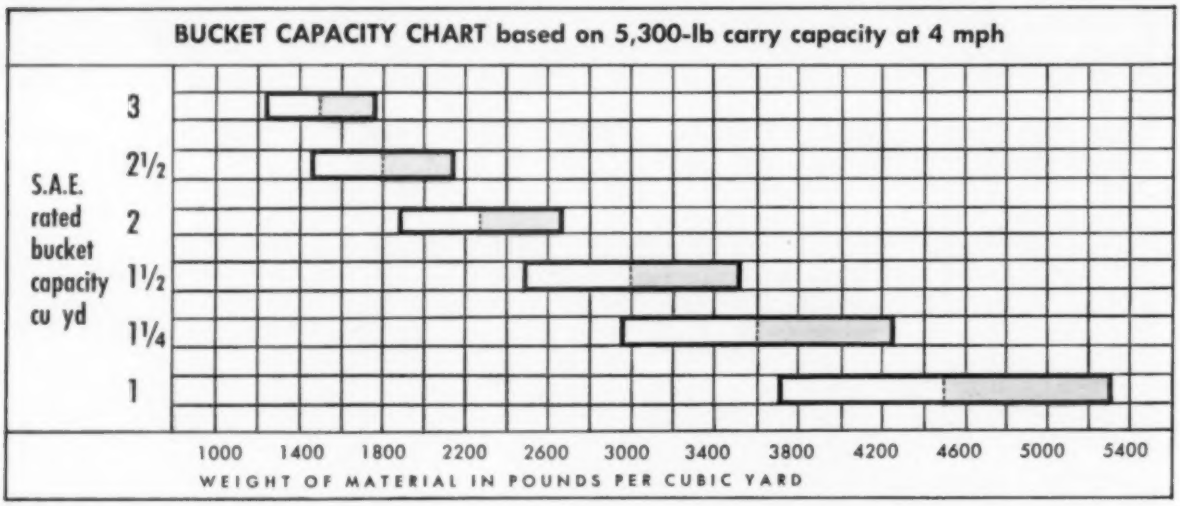
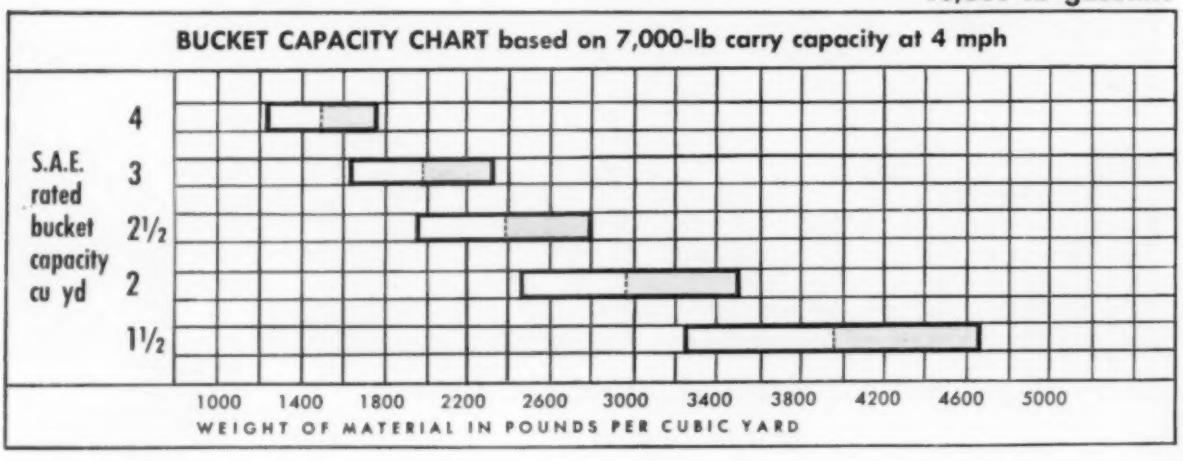
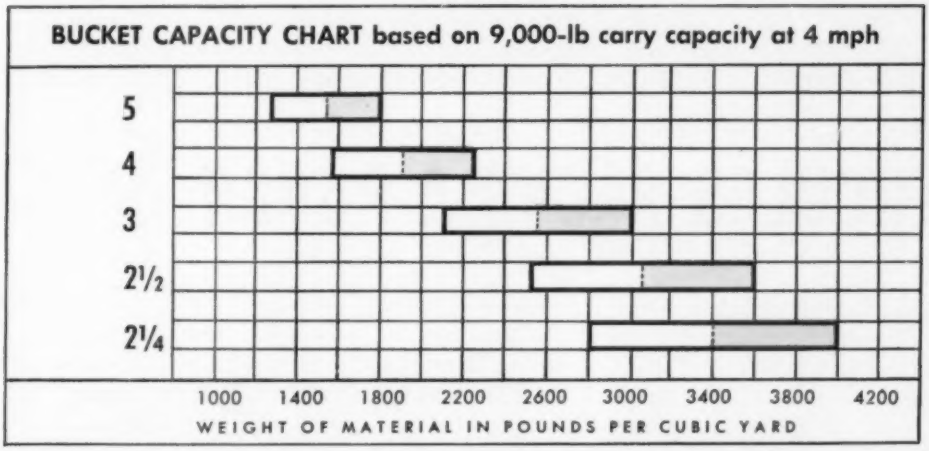

BUCKET CAPACITY CHART based on 5,300-lb carry capacity at 4 mph
S.A.E. rated bucket capacity cu yd
3
2½
2
1½
1¼
1
1000 1400 1800 2200 2600 3000 3400 3800 4200 4600 5000 5400
WEIGHT OF MATERIAL IN POUNDS PER CUBIC YARD

TL-16 TRACTOLOADER 104 hp diesel • 109 hp gasoline • Weight: 17,600 lb diesel 16,380 lb gasoline


BUCKET CAPACITY CHART based on 7,000-lb carry capacity at 4 mph
S.A.E. rated bucket capacity cu yd
4
3
2½
2
1½
1000 1400 1800 2200 2600 3000 3400 3800 4200 4600 5000
WEIGHT OF MATERIAL IN POUNDS PER CUBIC YARD

way to proper bucket selection

TL-20 TRACTOLOADER 130 hp diesel • Weight: 23,150 lb



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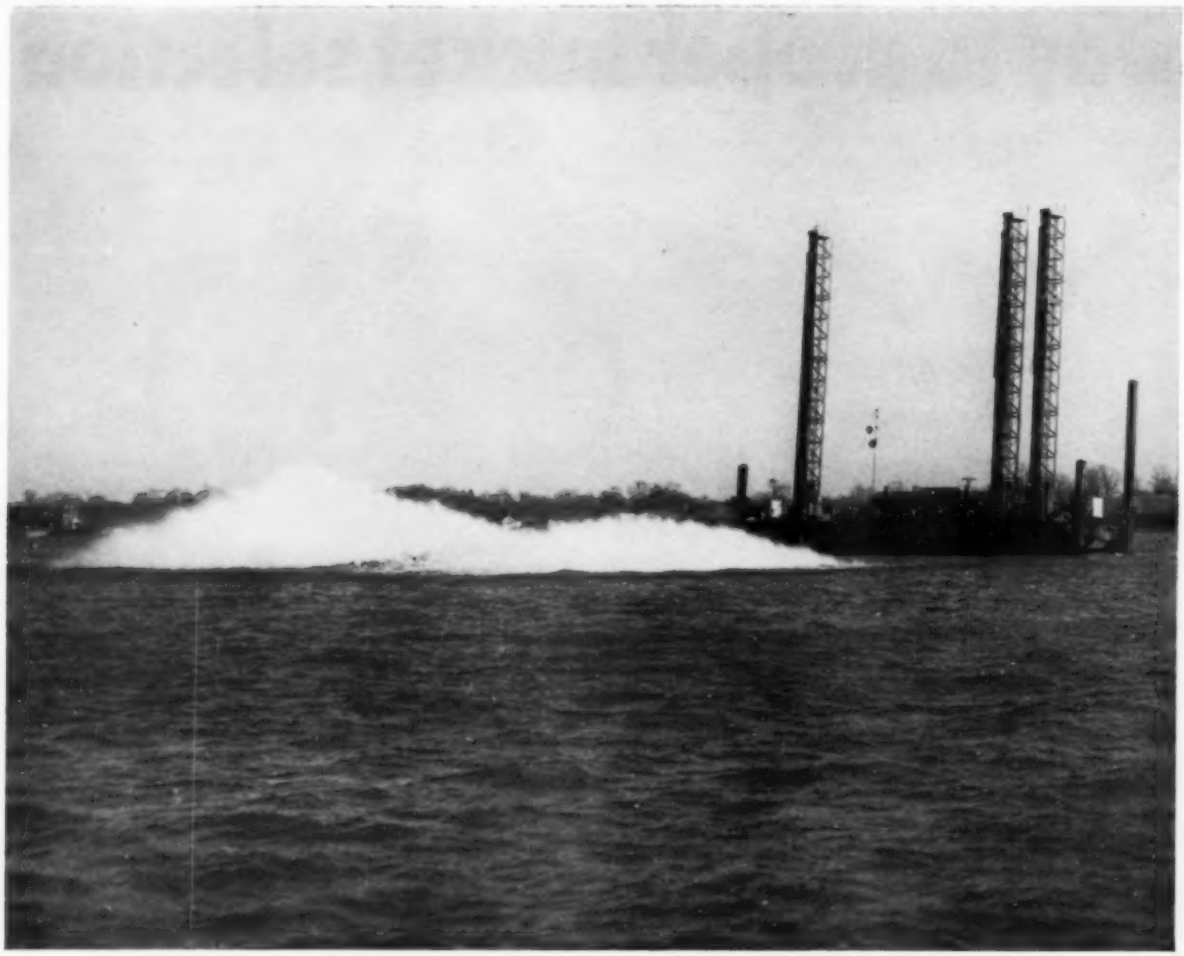

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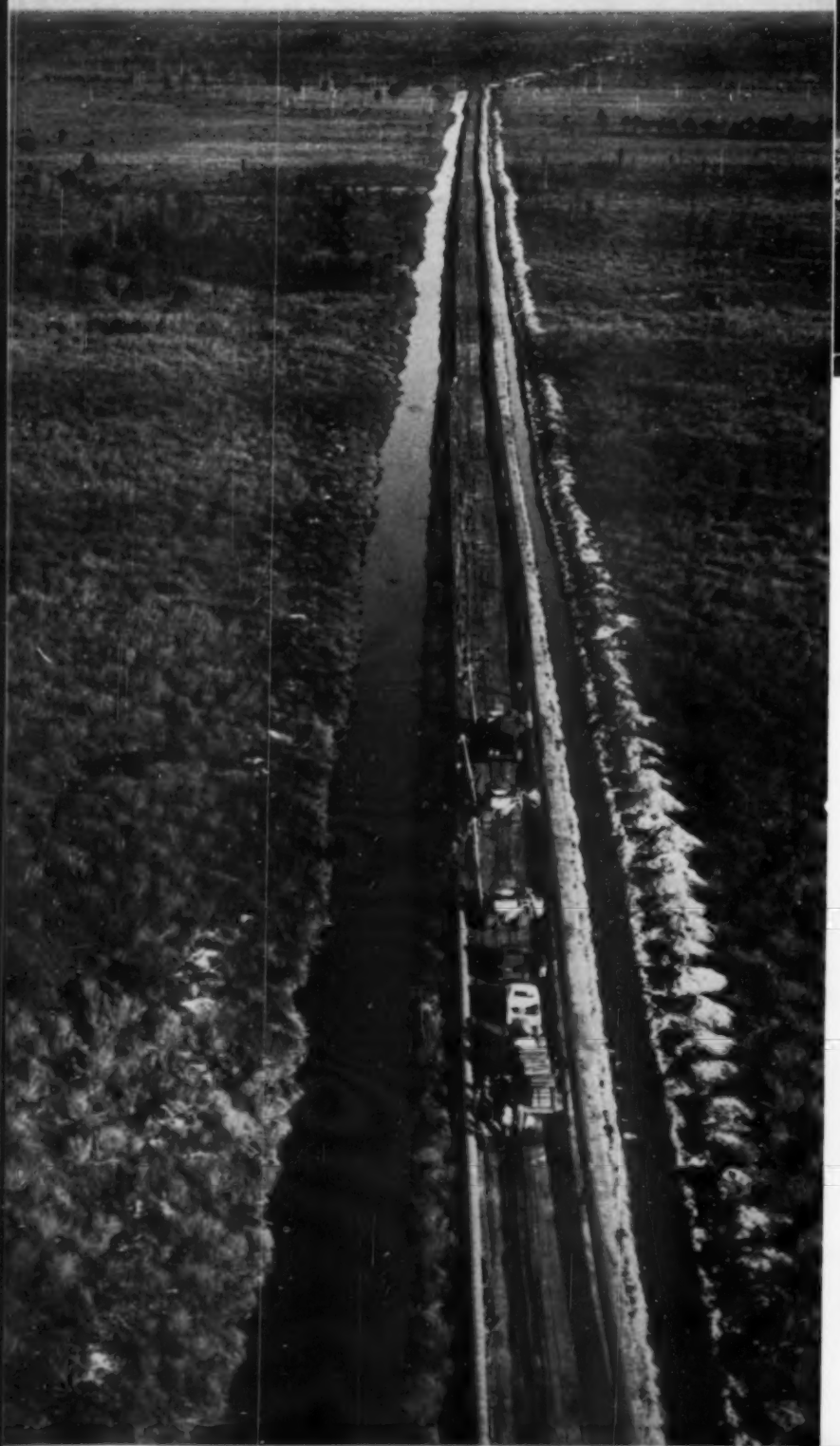


Florida's Pipeline to Prosperity

Natural gas line from Texas to Florida is one of largest current pipelining projects.

by H. J. Miller

A KINGSIZE pipeline laid across the Gulf states from the Texas gas fields to Florida, is bringing natural gas to the Sunshine state, the nation's last frontier for the natural fuel. Contractors are putting the finishing touches to the $167 million line consisting of 1,600 miles of pipe, built by the Houston Texas Gas and Oil Corp. and Coastal Transmission Corp.

To many people, Florida is a land of sun-drenched beaches, Bikini-clad bath-

Florida's endless stretches of marsh and swamp are a challenge to crews laying the 24-in. diameter main line into the water-filled trench at right of photo.

(Above) The big-diameter pipe is wrapped with Polyken plastic tape and felt outer wrap for protection against corrosion before lowering into the ditch.

ing beauties and neon-sign glitter, but turn the kaleidoscope a bit and you see the bleak picture of a state whose economy is precariously pegged to citrus and tourist dollars. Last year, unprecedented cold weather gave both of these income sources an evanescent *Gone-with-the Wind* quality.

It is expected that the new gas supply will usher in an era of industrial prosperity likened to the coming of the railroads—stilling those economic jitters.

Florida has no natural fuels, and many industries have studiously avoided the state for this reason. Now that gas is a reality, over $150 million in industrial expansion has already been chalked up by industrial giants like du Pont and others.

History of the mammoth project goes back to 1954, when a survey revealed Florida to be a sleeper market for a gas pipeline. The Coastal Transmission Corp. was formed at that time as a subsidiary of Delhi-Taylor Oil Corp., Dallas, Tex., one of many enterprises of Clint Murchison, prominent Texas oil man.

Develop Plans

Coastal was created to gather and transport gas from the Lone Star state and Louisiana for large interstate pipelines already in existence. But when negotiations with the pipeline firms failed, Coastal joined forces with Houston Texas Gas and Oil Corp., which intended bringing the natural gas to Florida.

In June 1958, Delhi-Taylor exchanged its stock in Coastal Transmission for stock in Houston Texas, with both firms under the same company ownership. Under the guidance of a single set of owners, the Coastal and Houston Texas firms operate autonomously.

Coastal Transmission is gathering gas from many of the larger Texas and Louisiana oil and gas companies, including Gulf, Shell, Sun, Delhi-Taylor, Atlantic, Superior, Pure, Sohio and Cities Service. Coastal has charge of pipeline operations from its point of origin in McAllen, Tex., to East Baton Rouge, La.

Houston Texas Gas and Oil Corp., through its pipeline contractors, ditched the line in from East Baton Rouge to Cutler, Fla., just south of Miami. It also ran laterals, absorbing a few minor existing gas supply networks.

On the Florida spreads, Houston's prime contractors employed about 1,500 workers, along with the services of various sub-contractors, to the tune of a $15 million payroll annually. To lure top gas engineers and key personnel

A fleet of Ford stringer trucks bring up the special 60-ft. pipe lengths which were double jointed by Midwestern-Walco at the Gadsden (Ala.) plant of Republic Steel.

This is the route of the 1,600-mile gas line which runs from gas fields near McAllen, Tex., to Miami. Coastal Transmission Corp. is building the portion from McAllen to East Baton Rouge, La., and Houston Texas Gas & Oil Corp. the remainder to Miami.

(Left) Welders used ⅛, 5/32 and 3/16-in. coated rod with two bead bands, two hot pass bands and four back-end welds on the pipe joints. (Above) This is the specially developed taping machine which cleans the pipe with wire brushes and then applies a single wrap of Polyken tape and glass-reinforced felt outerwrap.

from the Southwest and Midwest, Houston arranged for the construction of about 48 air conditioned houses in the $20,000 and up class, particularly in towns along the system where its talented personnel might balk at settling. The houses rented at nominal prices.

The firm purchased about 200 motor vehicles for the job. It already owned an airplane and shared ownership in two others with a contracting firm. Also available was a helicopter which was about the only machine that could set emergency supplies down on Florida muck.

Prime contractors for Houston are Midwestern-Walco Contractors, St. Petersburg, Fla., and Harbert Construction Co., Birmingham, Ala.

The Baton Rouge-Miami gas system comprises 679.4 miles of 24-in. mainline pipe, constructed by Midwestern-Walco plus 97.1 miles of 20-in. pipe and 137.7 miles of 18-in. pipe, constructed by Harbert, for a total of 914.2 miles of main line. In addition there are 707.7 miles of 2½ to 18-in. sales laterals built by Harbert. Combining main lines and laterals, the system totals 1,621.9 miles. Specifications for main line pipe called for 5LX grade X52 .312-in. wall for most overland construction; .375 wall in populated areas and for highway and road crossings; .436 wall for minor river crossings; and .500 for major river crossings. Total river crossings were 28.

Initial supply of gas will be 282 million cubic feet daily, with a maximum capacity of 287 million cubic feet. A $41 million compressor-station expansion program planned for completion by January 1960 will boost capacity to 418 million cubic feet daily.

First customers of the line will be industries like Florida Power and Light Co., Miami, which will take 100 million feet of gas a day, and Florida Power Corp., St. Petersburg, which has contracted for 50 million feet around the clock.

Superintendent John Work heads Midwestern-Walco's spread 3, which is building the Kissimmee-Miami job section.

The line will be based primarily on an industrial load because Florida's semi-tropical climate does not offer the big space-heating market that exists in most of the United States.

Excavating Engineer recently made a photographic tour of a Midwestern-Walco spread working around High Springs, Fla., a few miles from Gainesville. The firm is a joint venture of Midwestern Constructors, Inc., and Walco Engineering and Construction Co. Spread Superintendent is John Work.

The key to exceptional speed across gooey marshland and snake-infested palmetto land was the use of 60-ft. joints. Two 30-ft. pipe sections—welded by automatic submerged arc welding at the mill—were ditched in at one time, instead of the standard 40-ft. joints.

Use of the 60-ft. joints made it possible for the contractor to cut field welds by one-third and to cut in half travel distances for the set-in tractors used by the pipe gangs. It also speeded up line-up and stringer bead welding time.

The double joints delivered by Republic Steel Corp. amounted to 124,000 tons—the largest single order of line pipe ever placed with Republic's Gadsden (Ala.) mill.

In a single day, Midwestern-Walco's Spread 3 under John Work laid 14,100 feet in central Florida's tough swampy terrain. Work's spread had been laying

12,000 to 13,000 feet regularly in northern Florida, and hit a high of 18,000 feet in this area where the pipe gang used three stringer bead welders and four on hot pass, with nine firing line welders. Working crews found the 60-ft. joints no more difficult than 40-ft. joints.

Work's spread featured about 30 machines, among them Bucyrus-Erie, Unit, and Link-Belt Speeder draglines, hoes and clams, and Caterpillar and Allis-Chalmers dozers and sidebooms. In many cases the sidebooms rendered yeoman service in helping unload pipe from the stringer trucks and hauling it in over rip-rapping to the pipe site.

Watery Problems

In addition to battling the rugged, swampy backcountry, Midwestern-Walco crews encountered assorted obstacles of pockets of quicksand, water and mud.

"Oh, yes, and snakes," said Work. "In one particular area, all personnel had to wear knee-high metal leg guards for protection."

An interesting economy resulted from the use of mill-welding. On 24-in. diameter pipe with a .312-in. wall thickness for the main line, a field weld was estimated by Houston to cost $27.50. The same weld made automatically at the mill costs $13.50. Using 30-ft. joints instead of 40-footers, the number of welds was increased a third, but the cost of welds made at the mill was only half that of field welds. So the net saving was estimated at one-sixth.

From the excavating standpoint, the Houston Texas Gas & Oil Corp. pipeline hugs the Gulf Coast all the way, encountering timbered swamps for about 25% of the route. The kind of job faced by the crews may be appreciated through the fact that Florida has been excoriated by experienced earthmovers and pipeliners as "650 miles long, 150 miles wide and *one foot high!*"

There is considerable truth in this description, since excavating frequently

An extensive system of laterals will bring natural gas to these Florida cities. Houston Corp. is conducting a survey to determine where extensive additions to the system will be made. Laterals and distribution lines will require several years to finish.

(Above) At a point where pipe will be shoved under a road, a ¾-yd. clam widens the trench. (Below) Here are the concrete bolt-on clamps used to anchor the pipe.

showed that the water table was only a few inches below the surface.

In the San Pedro basin of northern Florida, the route covered by the pipeline for 23 miles was often under 3 to 4 feet of water. During the winter, the water table was a scant 8 inches below the surface. Progress was maintained here by construction rip-rap mats to support the sideboom tractors and heavy excavator equipment. Where the right of way was inaccessible to pipelaying equipment, the line was continu-

ously coated with concrete and pushed into position.

An unusual phase of the Florida operations was the placing of the pipeline on the right-of-way land of the Sunshine State Parkway, which is a turnpike built along the east coast. The turnpike easement greatly simplified land acquisition problems for the transmission company. Crews of Harbert Construction Co., one of HTG&O's contractors, strung 18-in. pipe directly from trucks on the highway to the pipeline right-of-way. Ditching was easy.

But from Fort Pierce to south of West Palm Beach, excavating the sugary sand for 52 miles was a difficult and ulcer-breeding task. In some places, the ditch was 10 feet wide. South of Palm Beach, to the end of the line, the excavators ran into swampy ground with patches of coral, and most of the ditch there was beneath the water table.

Along the 132-mile length of this 18-in. line from Fort Pierce to Cutler, the pipe was welded 3 to 4 miles ahead of ditching operations. The dope gang busily engaged in cleaning and wrapping the pipe with polyethylene tape, followed right behind the ditching operations. When the soft ditch sides caved rapidly, it was at times necessary for the dope gang to crowd to elbowscraping contact with the ditching crews.

A Bucyrus-Erie 22-B dragline swinging a 1-yd. bucket digs a sandy loam trench past a grove of trees. High water table causes the trenches to flood almost immediately.

The Baton Rouge-Miami line is the first to be wrapped with a polyethylene tape for corrosion protection for its entire length.

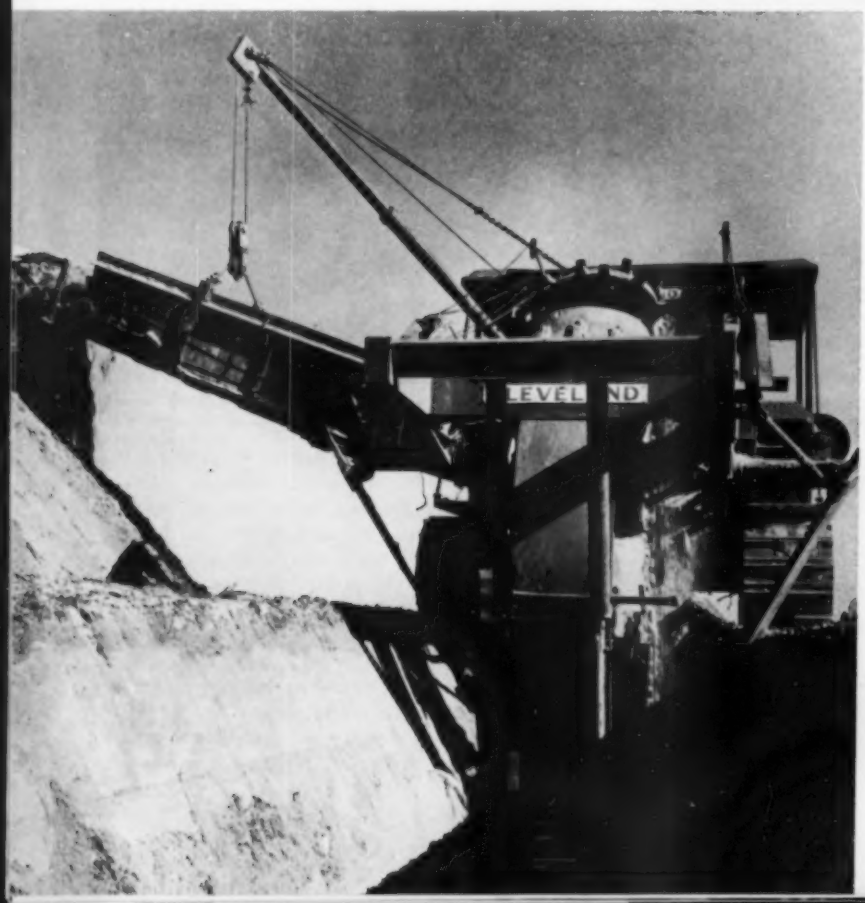
Houston foresaw sizable savings in use of the tape because of its low application cost.

No primer coat is required, and cleaning and spiral wrapping are done as a single operation, while two operations—cleaning-priming and coating-wrapping—are required for the hot enamel which is conventional protection on most pipelines.

Special Machines

Combination cleaning-wrapping machines were developed for this project, with hand-operated machines for wrapping compressor station piping. Pipe which had been stored outdoors for several months was double cleaned, first by a conventional cleaning machine, followed by the cleaning and wrapping machine.

The polyethylene tape—14 mils thick



A Cleveland wheel trenching machine ditches through a dry, sandy section free of rock. Specially adapted slopers give widespread, smooth-sided ditch walls.

Three pipelayers shove pipe through a swamp. In one wet area, 38,000 feet of concrete-coated pipe were laid as a push.

—was provided in widths of 12, 15 and 18 inches on the main line and all laterals. A 15-lb. asbestos felt outer wrap protected the tape from damage during installation, through being skinned by scraping the sides of excavations during lowering-in operations.

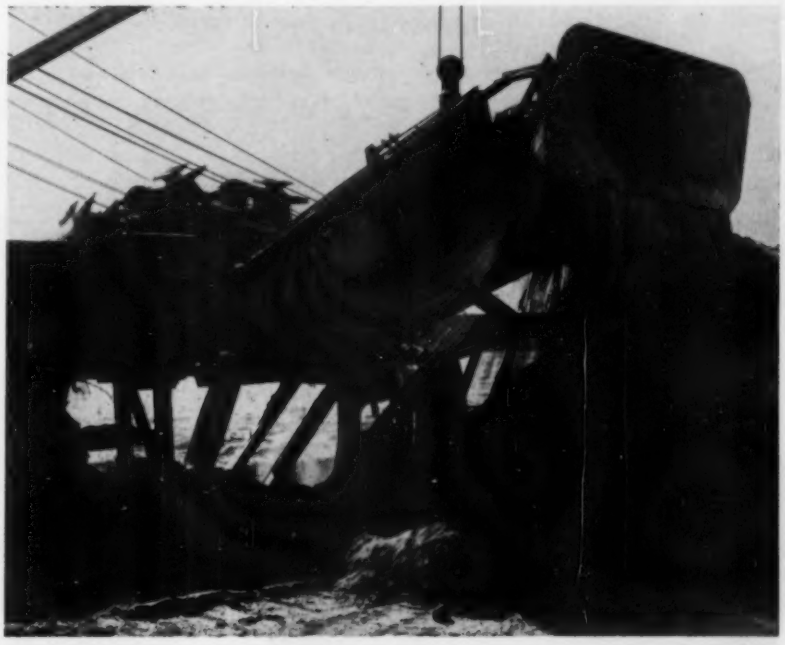
Houston officials reported their studies indicated the three main line spreads saved an average of $500 per mile of installed pipe by using tape. The higher cost of tape materials (about a third more than coal tar, which is specified for most pipelines) was more than offset by savings in application, Houston said.

The use of tape on the Florida line spells another first in the industry. In addition to cost savings on initial installation, current requirement for cathodic protection of a taped line was also estimated to be less. Coal tar was in the specs for the western portion of the line between McAllen and Baton Rouge.

Three of the major rivers crossed by the Houston line in Florida were spanned by aerial crossings. These ran as a 520-ft. span over the Pearl River; one of 640 feet over the Escambia River; and a 960-ft. span over the Apalachicola River, all carrying 24-in. diameter line.

Few tourists hastening through the Sunshine State realize the size of this job. For example, the 6,000-lb. pipe cleaning and wrapping machine cradled from the sideboom of a 56,000-lb. Cat applies almost 22 miles of protective wrapping for each two miles of pipe laying excavation and progress. On 270 miles of main transmission line, Harbert will use 2,946 miles of the wrapping material.

"That's more than the distance between Washington, D. C. and San Francisco," said one of Harbert's spread bosses.



Dirt pours off the conveyor as the digging wheel cuts trench to specification.

Hydraulic Dredge Builds Luxury Homesites

1,500,000 yards of material are relocated to create 120 acres of choice real estate.

Here's how Venezia will look upon completion. The system of canals and finger-like projections of land will permit residents to travel anywhere in the community by boat.

ON Florida's eastern shore, on the outskirts of the blossoming community of New Smyrna Beach, construction crews are working day and night turning what used to be marginal swampland into some of the most desirable real estate in the world. The developers of this project are two young U. S. Naval Academy graduates, Len and Walter Mulbry. Together with other financial interests, they are constructing a community that will rival the best in the country. The new city by the sea, named "Venezia," will blend the unique features of its Italian namesake—canals—with the latest advances in modern American living.

Less than two years ago, Venezia was a thousand acres of waste mangrove swampland. Even with the area's proximity to border-bursting New Smyrna Beach, it had been spurned by developers for years.

Fill 120 Acres

Now, 120 acres of land, including the site for an 18-acre shopping center, are filled and building construction is underway.

As designed by the late Arthur McVoy, nationally-known city planner who also planned areas of Daytona Beach and Ocala, Venezia will contain a 22-acre park, a recreation center, churches, commercial establishments and 1,400 homes, each with water frontage. Nearly 50 canals and waterways will link various parts of the community.

The canal pattern consists of a "stem" canal down the center of the area. Branching out from it will be secondary waterways, wide enough to allow the largest yacht to turn in midstream, running north and south. The canals will

Continued on page 19

This is how site looks from the air. Sandy area in the foreground is part of 120 acres reclaimed from mangrove swamp.

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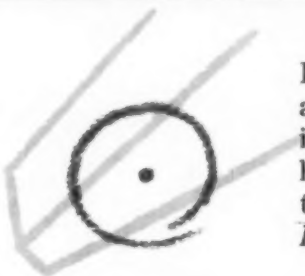

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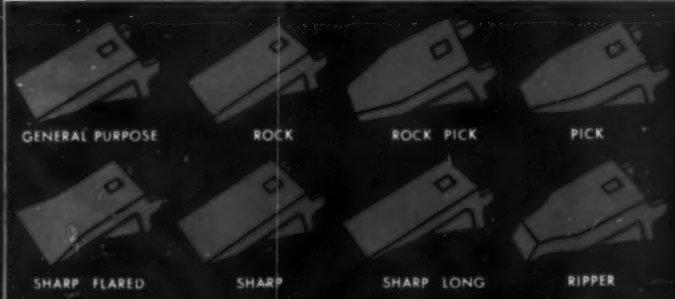

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Venezia . . .

Continued from page 16

range from 16 to 22 feet in depth. From these canals will emerge small lagoons served by paved streets connected to broad highways which, in turn, will tie into the principal traffic artery encircling the community for about two-thirds of its circumference. This arrangement will make it possible for residents to do their shopping, take their children to school, or go to church by boat.

One of the most important factors in the Venezia project is the inexpensive method chosen to fill the area. After a thorough investigation of the job, the Mulbrys decided on hydraulic dredging. The reasons they give are these: dredges go anywhere there is enough water to float them (as little as three feet in some cases) and they unearth "free" fill right on the property, transport it by pipeline, and relocate the solids in the most desirable lowland areas all in one continuous operation.

The brothers calculated the cost of buying and operating their own dredge and found they could do the job themselves for about half the cost per cubic yard of commercial dredging. They did this, and estimate the savings on dredging will be close to $500,000 by the time the project is completed.

The dredge used is a 10-in. Dragon model hydraulic pipeline cutterhead dredge, manufactured by the Ellicott Machine Corp., Baltimore, Md. It was appropriately christened *Bold Venture*. Powered by a 260-hp diesel engine, the dredge has a maximum output of 340 cubic yards of water-borne solids per hour and can pump through pipelines up to 2,000 feet long. *Bold Venture* is being used to widen and deepen present tidal creeks and to pump the fill material into the mangrove swamp area. It has been operating 20 hours a day since construction started with only very minor shutdowns.

During the day, the work crew numbers six men. Two are involved in tasks on the dredge, itself. The other four work on "the hill," as the newly relocated fill is termed. They position the pipeline, control the flow of the dredged sand and erect dikes. A total of three men are involved in the night shift. One operates the dredge and the remainder work on the hill. The swampland is prepared for the filling operation by workers with power saws who cut the mangrove and brush to ground level. Then the dredged sand is pumped through the pipeline into the area.

Dual Operation

"Finger and fill," a dual purpose dredging technique, is used to create canals and homesites simultaneously. To make this type of fill, the dredge is used to form a canal while the watery earth solids are pumped through the pipeline to adjacent fill areas. The result is fingers of filled land with waterways forming the area between the fingers. Four of these fingers have been completed in less than four weeks.

Within a year, it is expected an entire hand (consisting of a strip of land with five fingers) will be completely ready—including all utilities and streets.

To prevent water in the canals from becoming sluggish, Venezia will be equipped with culverts connecting its waterways with the nearby Inland Waterway. This arrangement will provide an adequate north-south flow of water through the canal complex.

Two problems peculiar to the locale have confronted the developers. One is the unusually high tidal range (5 feet, as contrasted to a normal 3-ft. range). To guard against flooding, bulkheads are being constructed two feet above the high tide mark. Foundations for buildings will be one foot above the bulkheads.

Another special problem was presented by the roots of the mangrove trees. Efficient operation of the hydraulic dredge even solved this problem. A blade was placed on the impeller of the pump which then successfully cut and ground up the roots with no halts in the operation.

(Above) *Bold Venture*, a 10-in. hydraulic cutterhead dredge, excavates the waterways and builds land in a single operation. (Below) Fill material gushes from pipeline.

EX-LAFFS Along the Pipeline
BY Marvin TOWNSEND
AND ANOTHER THING – HOW COME YOU'RE NOT WEARING YOUR SAFETY SHOES?
I DUNNO' – HE WAS HERE A MINUTE AGO!
I ONLY HOPE THAT BARREL IS WATER-PROOF FROM THE OUTSIDE-IN!
DRINKING WATER
I DON'T CARE IF YOU DO USE IT TO WIPE YOUR LENS. PUT IT BACK!
DID YOU EVER HEAR OF A PIPELINE SNORING?
DON'T EVER ASK THAT WELDER FOR A LIGHT!
SO I DECIDED TO GET THE CONTRACT EVEN IF I HAD TO BID THE JOB BELOW COST.
EXCAVATING ENGINEER

WHEN ORDERING NEW EQUIPMENT
SPECIFY!
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Hobart Builds a Contracting Business

A man can start a business even in the tough competitive climate of the Los Angeles construction market. A. L. Hobart did it by emphasizing dependability in himself and his equipment.

by Ray Day

ONE of the surest ways to succeed, in the critical first few business years when a small contractor's starting, is to be on somebody's preferred list. The way to be preferred is to be skilled, dependable, cooperative—and to have fine equipment.

A. L. Hobart, senior partner of A. L. Hobart & Son in Los Angeles, summed it up in those few words. In the days when he ran rigs for Contractor Bill Mrowka, he watched the smaller subs who succeeded. They invariably exemplified those four virtues. The ones who failed did not practice them. By practicing them when he started in business for himself, Hobart's growth has been sound and steady. He's watched other men start since he did, too. Invariably, to succeed and grow, they have to be skilled, dependable, cooperative and well equipped.

Like all contractors, the small-time man just starting out is on a limb; the small-timer especially so. In his case there's no sinking fund to draw from, usually no heavy financial backing, and one serious mistake can mean ruin. While most equipment financing plans leave a little leeway for payment dates, the small contractor is always faced with his monthly equipment payment, gasoline and transportation bills, and a payroll, however small it might be.

Minimum Goal

Hobart, who went into business for himself only after the most careful evaluation he could make, estimates no less than a 15-working day minimum per month is required.

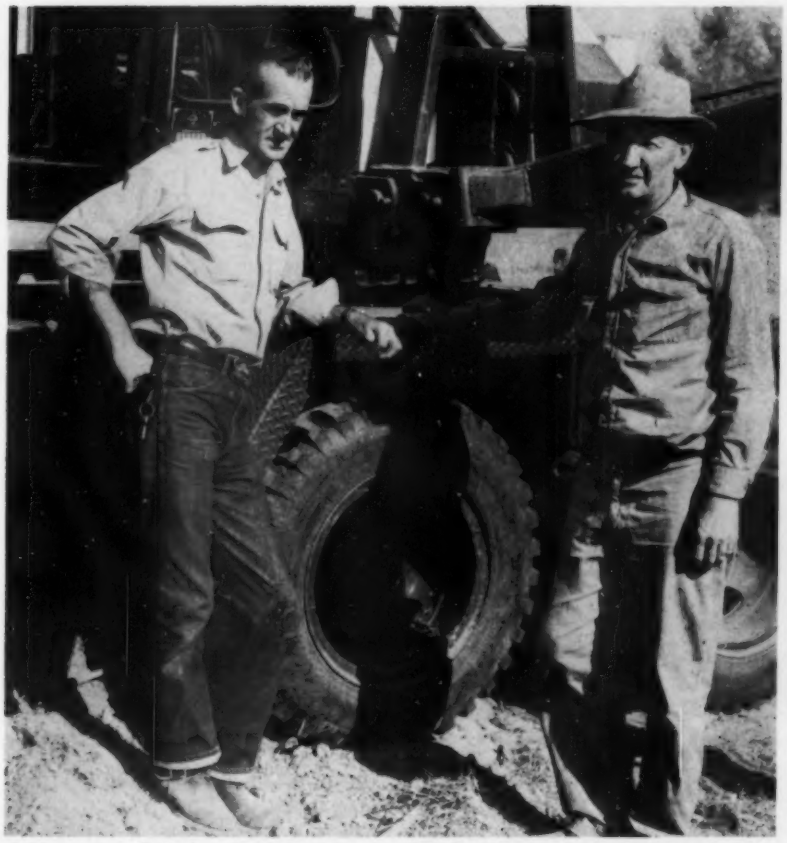
Hobart is pretty well set. He's pushed it now to a 17-day per month average, and is shooting for 20.

In the face of such a sword of Damocles hanging over the just-starting excavating contractor, what are the advantages, really, in beginning? Why not just continue to make a living at a regular job? Hobart has some good answers to those questions.

"First of all, a few men are cut out to work for themselves. They welcome the pressure. They don't try to avoid it. Makes life, and a man's work more interesting. I guess you'd call it a better feeling when a job is finished, or you're called to the next one, or invited to bid on something that makes you scratch your head and think. There's a lot of satisfaction in knowing you've helped a big contractor out of a tight squeeze.

"What's more, working for yourself isn't harder . . . it's easier. This way I don't have to go out of a hiring hall to anybody's job; I can do more picking and choosing. I can work with contractors and superintendents, and foremen and inspectors I really like and respect. Working on the type of jobs I take isn't as tough as operating on many a job. Take my son Tom, for instance. He works a regular shift operating, down on a disposal dump where they have cut-and-fill. He worked ten hours a day, 12 days in a row, not long ago. That's rough. You can take it just a little easier, if you're 53 years old like I

Mainstay of Hobart's equipment spread is this ⅜-yd. hoe shown working on the job of relocating 1,600 feet of 16-in. waterline.



Contractor A. L. Hobart (right), who operates the 11-B, gives instructions to oiler Jerry Barbee. Hobart went into business in 1954, and has built up a loyal clientele.

am, if you're in business on your own.

"And, for the same effort, you can still take home more at the end of the month if your equipment is your own. I guess that's the biggest reason of all why I like my setup so well."

Hobart's business really started a long time back, with an idea. At the time, Hobart was running several different makes of excavators for Contractor Mrowka. The more he operated and the more he saw how small rental contractors worked, and the older he got, the more he realized the big spot open to him in the Los Angeles area. In 1954, after his employer completed a project, Hobart made the big jump. Looking back on it now, he can say he made the move without really knowing as much as he should have about all the risk factors. If he had, he may have thought twice . . . or abandoned the idea. And yet he never found himself in serious trouble.

Hobart's first machine was a ⅜-yd. unit, equipped for hoe and crane use. Along with the rig, he had an asset in the fact that his operating work had taken him to many a job for a local telephone company. Over the years, doing six-way Transite conduit installations underground, Hobart had seen a field pusher for the telephone firm rise to the position of general operating superintendent. In this man he had a good friend who could honestly recommend him to the big general contractors who take telephone utility work—contractors like Alex Robertson Co., and John R. Davies & Son.

Too, Hobart approached his first private job with an attitude aimed directly at correcting many of those he had seen, and deplored, as an operator. He still brought the same topnotch personal skill to the job he'd always done . . . by running his own rig. When starting schedules called for his machine to be on the job at 8 a.m. Monday morning, Hobart was there at that time with the rig in running order, the fuel tank filled and nothing likely to break down. Why? Because he'd worked things over himself with his welding machine and mechanic's tools.

Shows Cooperation

When a superintendent walked through the day's job with Hobart and decided to work it one way, Hobart said, "fine," or "it sounds okay to me." He learned a long time ago that another superintendent, in the same or another place, might do the identical job differently. Since there are half a dozen ways of doing every job successfully, why shouldn't he let each of the superintendents he worked with do his job in his own way? That breadth of attitude has really paid off by making Hobart welcomed wherever he goes.

His business grew right from the start, and he added to his welcome on jobs by finding out what different inspectors wanted. Most utility firms'

A workman using a Thor grinder buffs smooth and shiny the joints of the water pipe to be relocated. Joints are welded.

The 45-ft. long concrete-encased pipe sections are lowered into trench by Caterpillar MD-6 pipelayer. Trench is 12 feet deep.

inspectors have extensive authority. What they say goes. So if one inspector emphasizes ditch smoothness, Hobart gives it to him without grumbling. Another man might emphasize the way grades should be run. There's no argument from the quiet, genial Hobart. And that pays off, too. So does the business of working closely with foremen.

By 1957, Hobart's business had expanded to the point where he could see 17 days a month for sure. The old machine was depreciated, and maintenance-repair costs were going up as they always do when machines get older. In addition, hoe work was moving into ever-tougher material, the ditches were getting deeper to a point where more reach was needed, and moving restrictions over California highways were getting tighter and tighter.

After studying the market carefully for a year, Hobart finally made his selection of a new machine which he expects to at least carry him through the next five years, when it will be depreciated. It's a truck-mounted Bucyrus-Erie 11-B. The machine was ordered with a hoe boom and ⅜-yd. dipper, along with a 45-ft. crane boom which would accommodate dragline and clamshell buckets of the same size.

No million-dollar machine was ever purchased by a big corporation with more care than the manner in which the 11-B was selected by Hobart. In the year's time Hobart studied the market, he looked at five makes of machines.

"One of the things I was looking for mostly," he explained, "was dependability. You see, on some of these out-of-town jobs for the telephone company, they have to pay crews extra money for subsistence and lodging. That runs costs up. If I had a machine that was always breaking down or idling those crews, they wouldn't think very much of me and I wouldn't last long.

Makes Choice

"Buying a rig is quite an experience. Everybody's got a gimmick. Of the five machines I compared, when I wound up with all the things I wanted on the rig, there was less than $200 difference between all five. Of all five, the 11-B was the only one that sold for less than a dollar a pound . . . and you can't buy hardly any manufactured metalwork for less than that now. The 11-B weighed more, was huskier and could reach 17 feet deep with a hoe. The contractors I work for liked it. It was the rig I wanted."

Hobart has whipped the transportation problem easily with his new machine. It will move over California highways without a permit; it can change from hoe to dragline attachments in about 45 minutes. On a trip, the 45-ft. dragline boom folds down under the machine, clam and dragline buckets fit on side brackets, and the hoe is carried on Hobart's pickup truck. It makes a slick one-trip load, and Hobart can move to Palm Springs or Lancaster or Santa Barbara at 50 miles an hour.

Early 1959 found the 11-B hard at work on a sizable telephone job at Palm Springs, handling ditch excavation and manhole digging on a multiple-way Transite job. Bidding the work as he usually does, Hobart had set a price per foot for ditch excavation, and received his usual rental price of $15.50 per hour for himself and his machine for manhole excavations. Material was a sandy alluvium, with quite a few cobbles which held the material together to some extent. It was easily dug by the 11-B.

Nearby, the new machine handled 600 feet of hard ditch digging which reached 18 feet deep. It was in a river bed near Cathedral City, and since excavation that deep by hoe was impossible, Hobart changed over to a dragline bucket and boom. The ditch was dug without trouble in four days.

Possibly one of Hobart's most interesting jobs came at the close of the 1958 working season, when a regular customer—John R. Davies & Son—called him. Davies had a subcontract

from Griffith Co. on 1,600 feet of 16-in. water line relocation for the Rowland Area Consolidated Water District, east of Los Angeles. Ditches were fairly sizable, ranged up to 17 feet deep, and there were numerous intersecting utilities: gas, telephone and other water lines. In addition, sanitary sewers intersected the system. It was a job calling for a machine with precise controls, and power to dig some of the toughest adobe in Los Angeles County.

Hard Adobe

On 12-ft. deep ditch work, 5½ feet wide, Hobart regularly averaged 200 feet of excavation per day. The hard adobe yielded readily to the proper-pitch digging angle of the bucket, and it dumped clean on the spoil pile nearby. Economy-wise, the machine handled about 80 cubic yards of excavation per hour for a fuel cost of 1½ gallons.

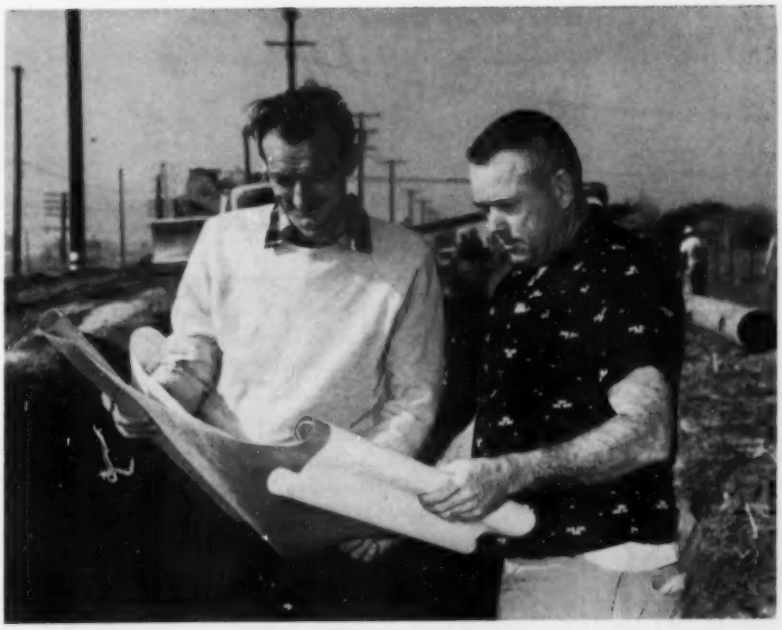
Following closely behind the 11-B, a Caterpillar MD-6 pipelayer lowered the 45-ft. pipe joints into the ditch, where welders with Lincoln machines joined them together. Joints were buffed bright and smooth by a Thor grinder, operating from a Jaeger 75-cfm compressor. The pipe was then V-welded and doped with protective material around the 4-in. wide bare spot at the joints.

It was a typical tight, well-organized spread, with dependable excavation leading off for Contractor Davies' other operations. The way it was handled will get Hobart another call, another day.

It really happens. It happens sometimes from strange sources . . . and it explains why they always call Hobart. Not long ago a contractor on a telephone company job had some tough excavation. But one of his own machines was idle, so he chose to use it. It would have worked, too, except that he had to call for a new operator, and the man they sent out lacked by 25 years the experience Hobart has, digging tough material. Excavation lagged. The job ran behind schedule, and when it was finally over the contractor sadly complained to the head inspector that he'd lost a considerable amount of money.

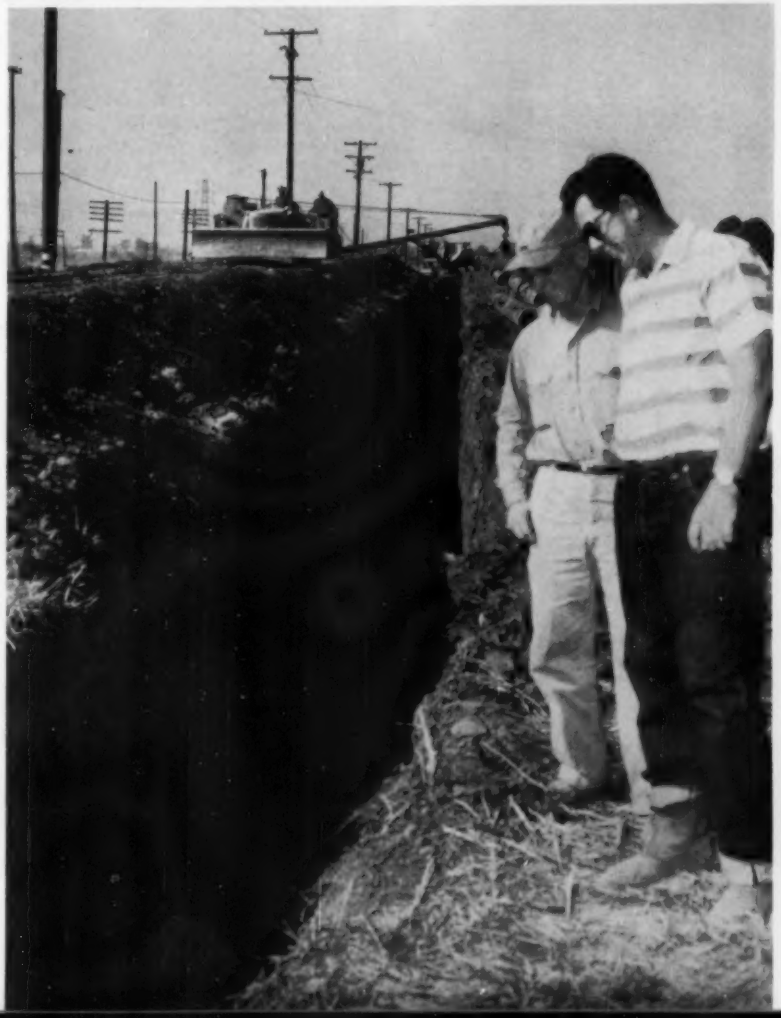
"Don't cry on my shoulder," the inspector replied. "If you'd have called Hobart to handle your digging, your troubles would have been over and you know it."

Hobart, with typical understatement, smiled and said, "Things like that really help a man like me in the long run."



Going over the plans, figuring every possible break for the contractor's crews, are E. N. Elton (left), representative for the consulting engineers firm of Alderman & Swift, and Bert DeBolt, inspector for the Rowland Area Consolidated Water District.

Job Supt. Paul Strider (left), and Wayne McCuiston, head of Smillie Engineering Construction Co., study a special dogleg in the water line which presents a problem.



Three-Seam Stripping 'Runs in Circles' at Kentucky Mine

Stripping shovel and walking dragline team levels hills in circular pattern to reach 4, 5 and 6-ft. thick coal seams. Pittsburg & Midway's Paradise Mine produces million tons annually.

TAKE a few rolling hills on a 3,500-acre leased property in the heart of Kentucky's coal fields, install a well-conceived program of three-seam stripping with modern equipment followed by immediate land reclamation, add a pinch of good sound management, and you've got a pretty clear picture of mining operations at Paradise Mine, five miles northeast of Drakesboro.

The mine is one of eight now owned and operated by The Pittsburg & Midway Coal Mining Co., whose headquarters are located in Pittsburg, Kan. The other mines are located at Madisonville and Sturgis, Ky.; Hallowell, Kan.; Russellville, Ark.; Appleton City, Mo.; Steamboat Springs, Colo.; and Laura, Ill. P & M president is Kenneth A. Spencer. Vice president in charge of operations is Ed Phelps, who frequently "flies in" to his widespread mining operations. Haulage roads are specially maintained for use as runways.

According to O. E. (Bill) May, 58-year-old Paradise Mine manager who lives in Greenville, the local plant processes the only #13 coal presently being mined in Kentucky. This unique situation was made possible by the installation of a practical method of stripping all three seams of coal. Nos. 13, 12 and 11 average 4, 5 and 6 feet thick respectively. The average ratio of overburden (including interval material) to coal, May pointed out, was close to 6.5 to 1. Because of the rolling and dipping nature of the various formations and seams, however, an accurate ratio is difficult to pin down.

The short drive into the Paradise Mine runs parallel to a portion of the two-section 7,000-ft. long conveyor system leading from the plant to a barge-loading dock.

Rocky Overburden

Maximum depth of the #13 overburden face, for example, is 55 feet; minimum is 30 feet in valley areas. The average face runs approximately 50 feet. Except for a few feet of clay on top, most of the formation is sand rock, including 35 feet of very hard, abrasive material. An average of 18 feet of fireclay and shale lies in the interval between #13 and #12; some five feet of fireclay and limestone lie between #12 and #11.

Since the mine was opened in 1953, over 34 million cubic yards of overburden, mostly rock, have been stripped in circum-leveling three hilly sectors. Approximately 9 million yards were excavated in a circular stripping pattern

General view of modern plant shows portion of the stockpile area where some 60,000 tons of classified coal can be stocked.

The big 770-B walker reaches far out with its 195-ft. boom to spoil 20 yards of fireclay and shale interval from No. 12 seam.

around Hill A; 10 million around Hill B; and, to date, some 15 million of an estimated 31 million yards have been stripped from Hill C, an area covering 339 acres.

Key equipment in the three-seam stripping operation here are a pair of Bucyrus-Erie machines—a 20-cu. yd. 750-B stripping shovel on the rock face and a 20-cu. yd. 770-B walking dragline on the intervals above seams 12 and 11. Both machines are electrically powered.

The rock stripper was originally installed at P-M's Kansas mine back in 1930 but was stripped down, completely overhauled and shipped to Paradise in 1953. One of its operators, Charlie Williams, a 70-year-old veteran, has been at the controls of the 750-B through its 28 years of service. Equipped with an 89-ft. boom and 64-ft. dipper handle, the 750-B was averaging 500,000 cubic yards per month.

The big walker was equipped with a 195-ft. boom and had accounted for an average of 600,000 cubic yards per month.

In the Paradise Mine operation, the 770-B works on top of the rock-earth spoil piles left by the 750-B. The spoil is dozer-leveled, however, clearing a 50-ft. wide runway for the 770-B's double run down the pit. The walker first removes the interval between seams 13 and 12 for a pit length of approximately 500 to 1,200 feet, depending on the processing plant requirements for #12 coal. Coal loaders move in almost immediately. Then, the 770-B "walks" back along the runway and strips the interval above #11.

Workhorse Dozer

The task of "paving" the way for the big walker is assigned to a Caterpillar D9 dozer—the workhorse of the Paradise fleet—which also cleans up for a rotary drill and handles other maintenance duties.

Rock overburden preparation is handled by a Bucyrus-Erie 40-R rotary blast hole drill and its three-man crew who work a single shift daily. When visited, the 40-R was putting down some 600 to 800 feet of 9-in. diameter hole per eight-hour shift. Hole spacing followed a 20 x 30 pattern with depths ranging to 55 feet. Bits are changed every 1,000 to 3,000 feet of hole and are sharpened or built up by welding equipment.

A McCarthy auger is mounted on a

Closeup of 770-B in action shows cam-action walking mechanism. The machine, which has a 1,900,000-lb working weight, is the largest walking dragline in Kentucky.

Well-kept Paradise haulage roads are typical of P & M programs at its eight mines. Vice President Ed Phelps, frequently uses road as an airplane runway on spot visits.

Bucyrus-Erie 22-T frame and is used regularly to drill blast holes in the fire-clay-shale interval above #12. A pair of Joy drifters (T-400) mounted on D8 crawlers work the interval between Nos. 12 and 11.

Fragmentation is normally good. In the sand rock and shale, the blasting crew was loading 55-ft. deep holes with approximately 475 pounds of Akremite (Austin Powder Co.) and getting about 2.8 cubic yards per pound of powder or about 1,200 yards per 55-ft. hole.

Coal seam preparation follows a typical pattern. Each seam is "swept" clean by a dozer—a D6 teaming with the 750-B on #13 and a D7 and D9 working with the 770-B on Nos. 12 and 11. A Paris Twin-Auger drill powered by a Ford Industrial rear-end engine puts down 2⅞-in. dia. holes to depths of four to six feet on 12-ft. centers . . . about two holes per minute.

A 2 x 8 stick of 40% dynamite is used per hole and shot individually as the crew moves up the pit. Based on 6-ft. deep holes, some 864 cubic feet of coal are broken up per shot.

Teaming up to load coal out of the pit are a 5½-cu. yd. diesel-electric powered Bucyrus-Erie 75-B and a 4½-cu. yd. diesel-powered Marion 93-M. The two shovels were loading out approximately 650 tons of coal per hour. Paradise owns a fleet of 10 coal hauling trucks—six 25-ton Euclids, three 30-ton Darts and one 35-ton Mack; all are bottom-dumps.

Each of the haul units was averaging about 22 loads per 7¼-hour shift, traveling over haul roads from 1½ to 3 miles long one way. Haul roads are kept in excellent shape by a Cat No. 12 motor grader with 12-ft. blade. Dust is kept to a minimum through constant watering of the roads.

"We're running about 3,500 tons of coal through the plant per shift," stated May. "That's roughly 4,200 tons of raw coal on the average. Our plant is set up to process the coal from six inches down to 28 mesh . . . just about anything the customer wants."

Coal Treatment

All of the coal is washed and either oil-treated or freeze-proofed. The raw material is dumped to a Bradford breaker which reduces it to minus 6-in. size. Then the material is carried up on 42-in. wide V-belt conveyor to two Pittsburgh-McNally wash boxes where a grizzly separates the fine coal from the coarse. The plus 2-in. coal goes to the six-cell wash box; the minus 2-in. goes to the five-cell box.

The coal then passes through the various screening processes to prepare quantities of sizes in demand.

Water is taken off the plus ¾-in. size right on the screen; then the coal goes across the classifying screen. The minus ¾-in. size and the water go over to a pair of Allis-Chalmers 6x14 single-deck lowhead vibrating screens where water and the ¼-in. are drawn off and the plus ¼-in. coal is loaded to cars. The minus ¼-in. coal and water are taken to a settling tank from which the minus ¼-in. coal is reclaimed and dumped to a Rheolaveur fine coal launderer for further washing. The fine coal then goes to another set of Allis-Chalmers desliming screens—three 4x10 single-deck lowhead screens—and is conveyed and chuted to cars.

(Left) Rotary drill puts down 9-in. diameter blast holes in a 20 x 30 pattern. (Below) Powder crew loads the 55-ft. deep holes with bags of Akremite totalling 475 pounds.

A 4½-yd. diesel 93-M shovel teams up with a Bucyrus-Erie 5½-yd. diesel-electric 75-B to load coal to fleet of 10 haul units.

Paradise Mine ships all of its coal by railroad or barge. Five loading tracks lead from the processing plant to the L & N "Old Reliable" main line. An average of seventy 50-ton cars were being shipped out of nearby Drakesboro when visited. Average barge shipments, May said, run about eight 1,400-ton loads and six 600-ton loads weekly. The company operates six barges and a pusher between Paradise and Kentucky Utility Co. The latter firm provides the electric power for the mine—some 33,000 volts are transformed down to 4,400 for mine use and to 440 for plant operation.

Most of the coal is delivered to steam power plants in the midwestern and northern states. The balance is barged along the Green River to the Ohio by the Green River Towing Co.

To facilitate the mine's mushrooming barge shipments, Paradise officials installed a two-section 7,000-ft. long overland conveyor from the plant to the barge-loading dock.

"We started installation of the conveyor system in December 1957," May explained. "Actual hauling schedules got underway last June. The conveyor is designed to handle 800 tons per hour, and right now we're averaging close to capacity—around 700 tons per hour."

Approximately 16,000 feet of conveyor belt are used in the system—42-in. wide five-ply rubber belt from the tipple to the stockpile; 36-in. four-ply rubber belt from the stockpile to the loading dock. The belt moves along at 600 feet per minute.

May reported that annual plant output ranges close to a million tons. Up to 60,000 tons of processed coal can be stockpiled adjacent to the plant for "rush" orders.

Maintenance needs at the Paradise Mine are constantly watched through a close personal checking system followed by various crews.

Equipment Checks

"Daily logs are kept on all of our machines," May stated. "We usually know just when and where to look for trouble. Everything is logged daily.

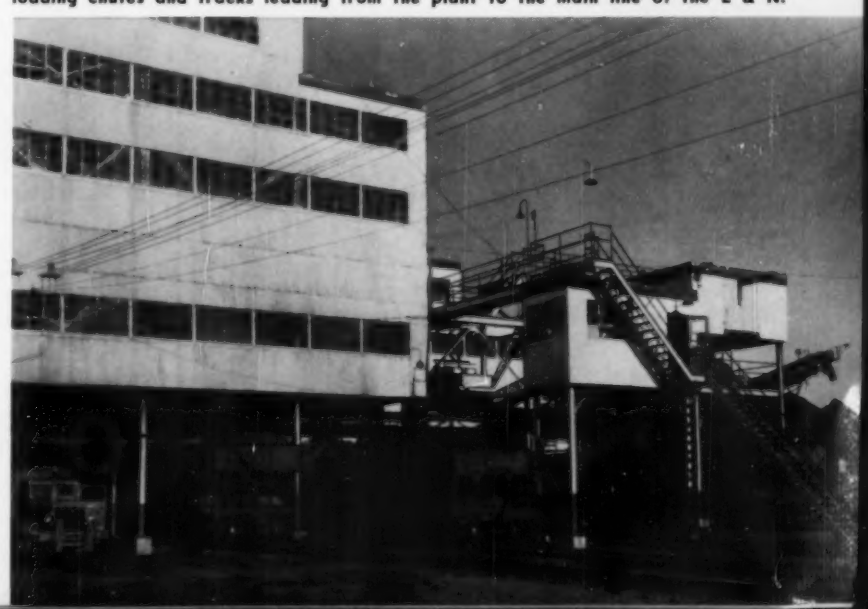
"If we shut down for any length of time," he continued, "we go over the machines with a fine tooth comb. We don't follow a set pattern on times for inspection. Oilers are always on the alert for breaks; our crews, in fact, are trained to inspect the machines. As a result, we usually catch trouble before it occurs."

May also pointed out that 98% of the repair work around the mine is handled in Paradise's own 50x120-ft. shop adjacent to the processing plant and connected in an L-shaped manner to the office quarters. Only the big heavy press work is sent out.

The welding crew consists of five men—two on each of the early shifts, one on the third shift. Several others can be called on for welding if necessary. Lubrication of trucks is handled during the third shift only by two men who take care of oil changes, greasing, etc., of all mobile units on required schedules for each unit.

Mine safety has been maintained at a high level. Safety meetings are held

Paradise Mine ships exclusively by rail or barge. Shown here are the five railroad loading chutes and tracks leading from the plant to the main line of the L & N.



A conveyor belt feeds this loading dock at the rate of 700 to 800 tons per hour. Weekly barge shipments average 15,000 tons.

every other month at which time officials and personnel review the entire situation and adopt ways and means to correct any problems. The meetings are conducted by F. J. Foresman, director of industrial relations, who is responsible for the safety program at all P & M mining operations. An intermine contest is sponsored by Pittsburg & Midway to minimize "lost time accidents." Paradise won it in 1957, and as May put it, "we've been pretty fortunate on accidents here, thanks to an all out effort on the part of our people to make themselves safety-conscious. With no fatalities or serious accidents to date, I'd guess our safety program has paid of."

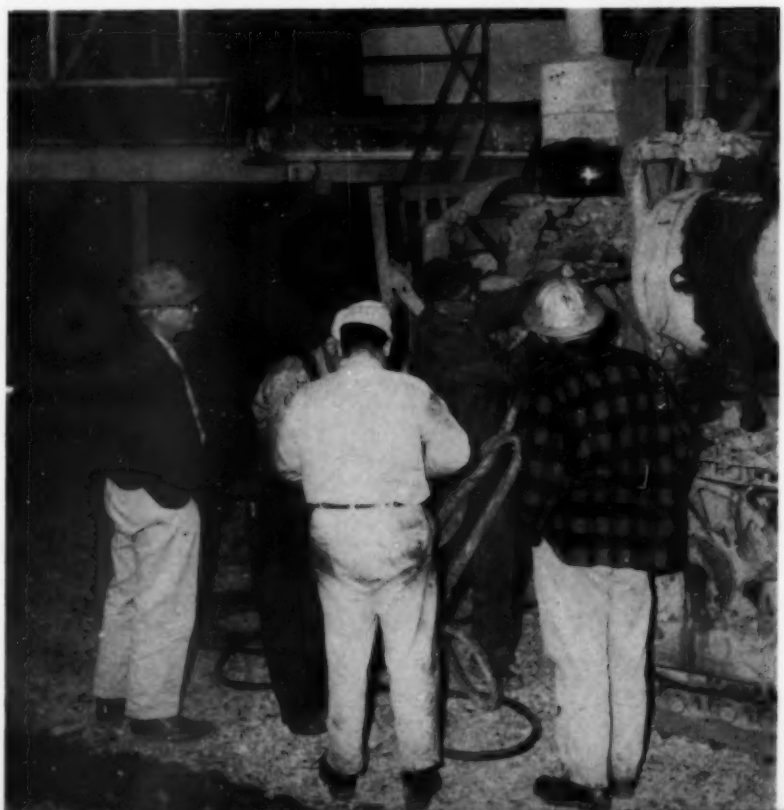
To facilitate communication at the mine, Paradise has installed a Motorola 500-watt, two-way radio system between the office and all foremen's pickups, each stripping machine, the tipple, scale house, boat pusher, shop and May's personal car.

In addition to the stripping, loading and drilling units, other equipment at the mine includes a Bucyrus-Erie 54-B dragline for utility excavating; a Hough rubber-tire Payloader for carrying and handling materials; a LeTourneau Tournapull-Crane for lifting and unloading around the shop and yard; a 30-ton Dart rear-dump for hauling refuse from the plant; two D7 and two D8 utility tractors; one International TD-24 dozer; and a service fleet consisting of four pickups (both Ford and Chevrolet), three Dodge Power Wagons, a jeep and a 1½-ton Chevrolet truck.

Supervisory officials at the plant, in addition to Manager Bill May, are C. J. Garrett, superintendent; Sherwood Sorrell, mining engineer; Mehrle McDermod, chief electrician and mechanic; Bob Oswald, tipple foreman; Melvin Dukes, pit foreman; John T. Reynolds, second shift superintendent; Dale Treadway, second shift pit foreman; William Garrett, second shift tipple foreman; and J. W. Kaiser, chief clerk. The Paradise Mine roster includes 55 people working the pits; 61 in the plant, shop and offices; and seven loading and shipping.

May, who started in mining back in 1935 for Northern Illinois Coal Corp., Wilmington, Ill., and spent four years at that firm's Seminole Mine at Lenzburg, Ill. He then joined P & M and West Virginia Coal and Coke Co. as superintendent. He became mine manager in 1953 when P & M took over the entire mining operations.

O. E. (Bill) May, mine manager (left), watches as Supt. C. J. Garrett adjusts compressed air hose. Air is used here in effort to remove fine coal collecting on conveyor.



WORK-ABILITY

EUCLID TC-12

...WAY AHEAD OF ANY OTHER CRAWLER!

5 BASIC ADVANTAGES
of this Twin-Power Tractor give you a Better Return on Investment . . .

TC-12

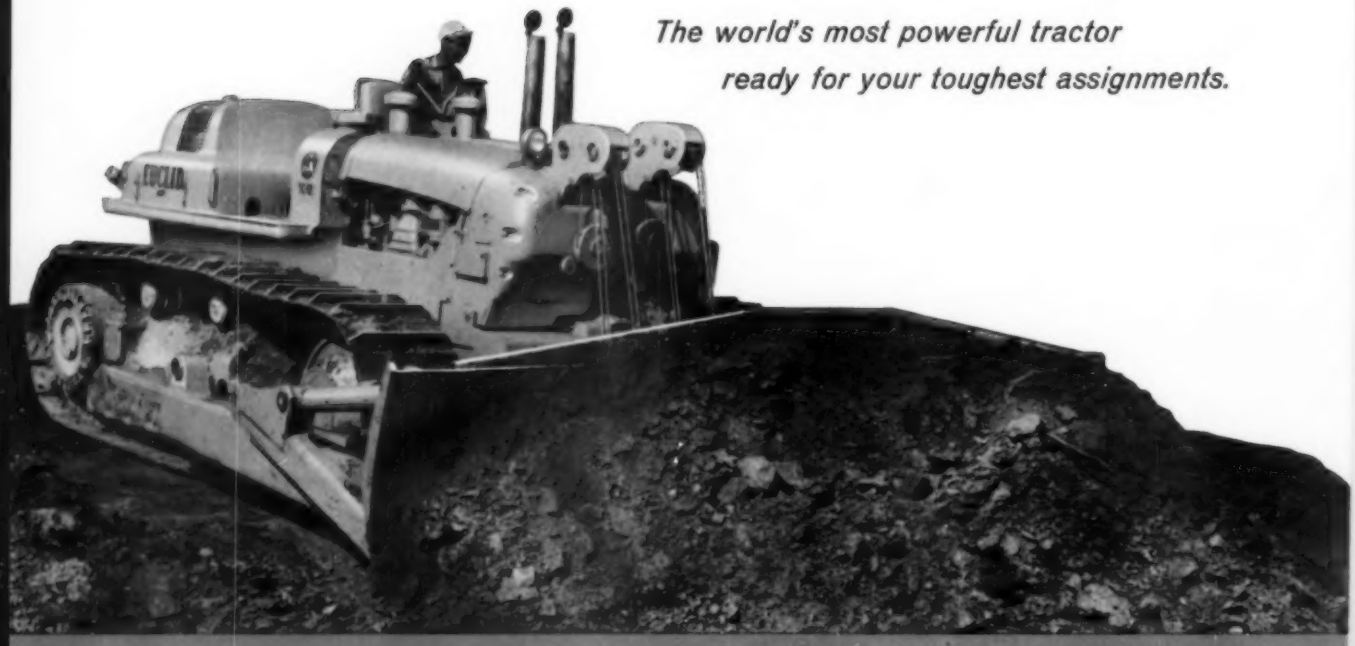
Unequalled Power...Performance...

TWIN POWER

425 NET H.P.

A completely new concept in tractor design and performance when it was introduced 5 years ago, the TC-12 continues to lead the field in workability. Its functional, years-ahead design, 425 net h.p. and two Torqmatic Drives make it the best all-around performer in the big tractor field . . . for push-loading scrapers, dozing, heavy ripping and pulling big equipment. Big power, easy operation, good visibility and fast-on-its-feet maneuverability enable the TC-12 to get more work done every shift . . . and bring a better return on investment.

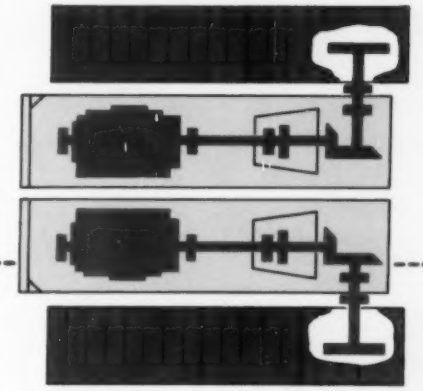
The world's most powerful tractor ready for your toughest assignments.



Reliability proved by thousands of operating hours on all types of jobs!

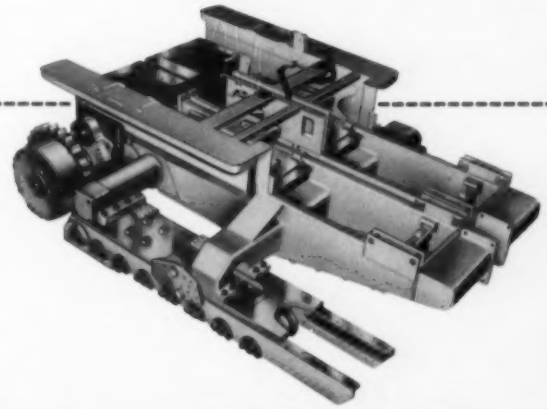
Maneuverability...Ease of Operation and Maintenance

5 BASIC ADVANTAGES OF THE TC-12



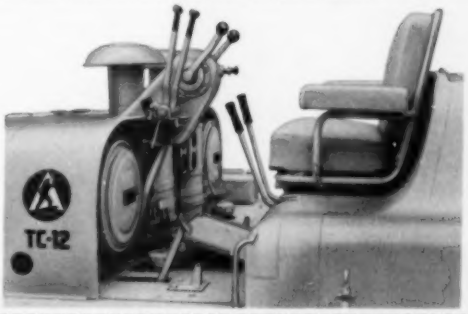
TWIN ENGINES . . . Total of 425 net h.p. With two performance proved engines the TC-12 has up to 35% more net h.p. and 46% more work capacity than the biggest tractors of other makes. Separate Torqmatic Drives for each engine automatically match power to work requirements for push-loading scrapers and heavy dozing.

INDEPENDENT TRACK DRIVES Separate power trains provide individual control of speed, power and direction of each track. Spin turns can be made in its own length by simply reversing the direction of one track. Since only half of the total h.p. of the TC-12 can ever be applied to each track, there's no shock load in turning . . . less wear and tear on sprockets, tracks, rollers and other driving parts.

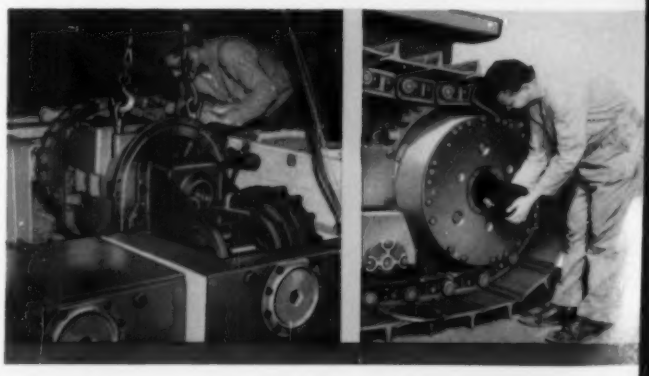


RIGID TRACK ALIGNMENT Each track is rigidly positioned to its main frame and is kept in constant alignment . . . a large diameter pivot shaft connects the two frames and permits free oscillation of each half for maximum traction on rough ground. Heavy track frames, just above ground level, add to stability and transfer shock loads to the rugged main frames. Longer track life, and resulting reduction of downtime and maintenance costs, are important advantages of constant correct track alignment.

FAST, EASY OPERATIONS Full power shifting . . . independent track drive with separate power trains . . . ability to spin turn in its own length . . . good visibility . . . convenient simplified controls . . . elimination of all clutching . . . ample operator space for comfort . . . excellent over-all balance . . . all of these factors contribute to easy operation that improves operating efficiency and gets more work done every shift.



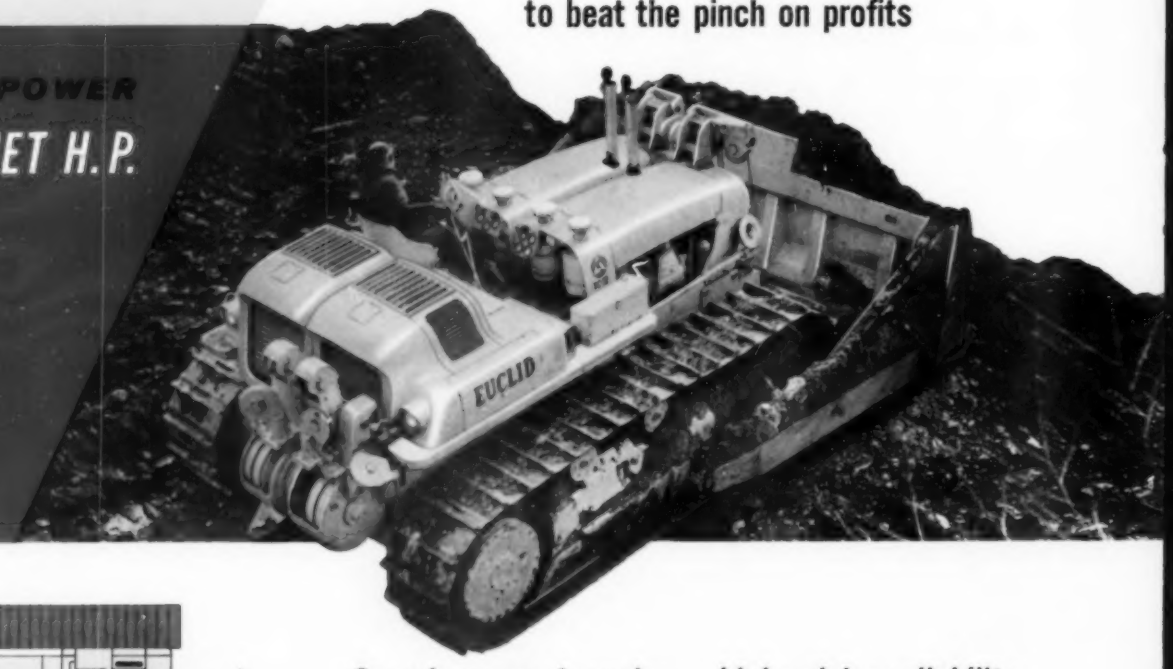
UNEQUALLED ACCESSIBILITY Advanced engineering and unitized assembly of components reduce downtime for maintenance and repair. "Package" assembly and out-in-the-open accessibility saves many hours in the removal, servicing and replacement of engines, sprockets, converter-transmissions, final drives and other components. For example, drive sprockets can be replaced in about one-half the time required for a competitive crawler . . . final drives four times as fast . . . transmission-converter and brake package in one-fourth the time.

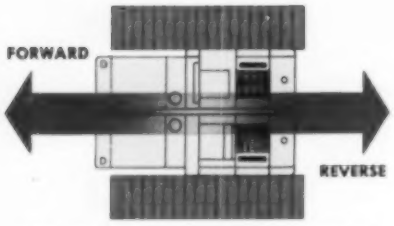


EUCLID TC-12 BIG POWER PERFORMANCE PRODUCTION

to beat the pinch on profits

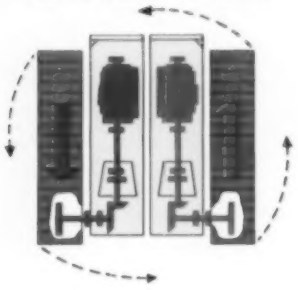
TWIN POWER
425 NET H.P.





NO CLUTCHING . . . NO STOPPING

FULL POWER SPIN TURNS



Speeds up work cycles . . . higher job availability

Whatever the application . . . heavy dozing, ripping, push-loading scrapers, etc. . . . the power, speed and mobility of the TC-12 get more work done faster. With full power shift, from any speed range to another and from forward to reverse and back again, there's no clutching. Independent power trains for each track permit spin turns and variable power application for slide slope and other work. Functional design provides excellent accessibility and easy operation . . . cuts downtime for servicing and repairs far below that required for any other big tractor. Prove to yourself that the Euclid TC-12 gives a better return on investment.

Get all the facts now!

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. . . a complete line of equipment for heavy earthmoving, mining, logging and many industrial operations . . .

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Q *Why are* **MORE AND MORE** *forward-thinking contractors buying Hydrocranes?*

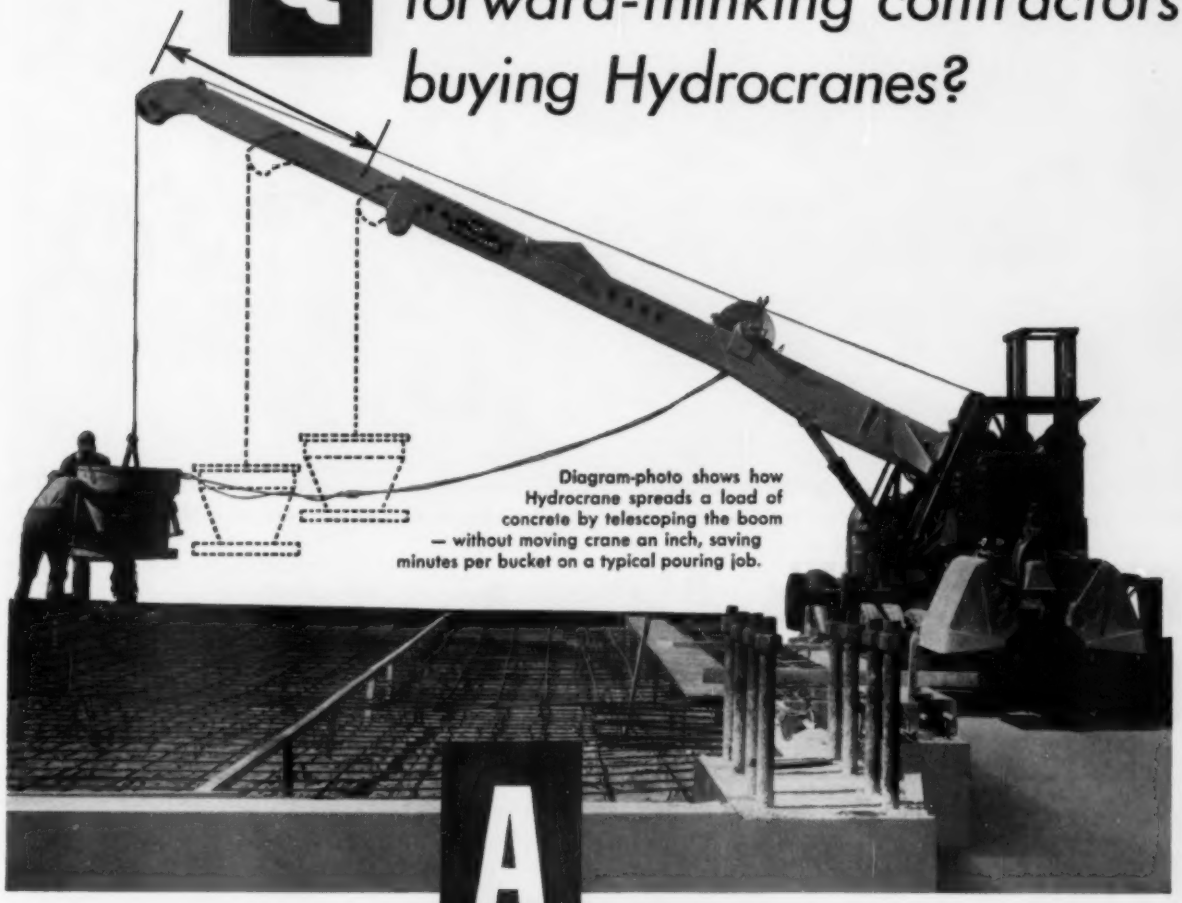


Diagram-photo shows how Hydrocrane spreads a load of concrete by telescoping the boom — without moving crane an inch, saving minutes per bucket on a typical pouring job.

A ONE BIG REASON IS TELESCOPING BOOM

You can telescope a Hydrocrane boom in or out hydraulically while you're working — change the boom angle at the same time — spot a load exactly where you want it without moving the crane an inch. You have the spotting ability of *several* fixed-boom cranes — all for the price of a single unit.

With the Hydrocrane's telescoping boom, you can poke loads through doors . . . reach over obstacles . . . duck under limbs, wires, cables. Standard H-5 Hydrocrane boom gives you a 24- to 36-ft range . . . long boom a 38- to 50-ft range, or up to 70-ft with a jib.

With a Hydrocrane, you work faster, bid sharper. **Your Bucyrus-Erie distributor will gladly arrange a demonstration.** Write Bucyrus-Erie Company, South Milwaukee, Wisconsin, Dept. 26H.

Feature by Feature—It Fits YOUR Needs

- **smooth, split-inch precision and safety with all-hydraulic control**
- **minuteman setups and knockdowns, road speeds up to 50 mph**
- **stable, level work base with four power-set hydraulic outriggers**
- **mounts on new or used commercial truck**

BUCYRUS ERIE®

Over 50% of HYDROCRANES sold last year were repeat sales

Cat D9 dozers load scrapers hauling dirt from one of 24 major cuts along the 13 miles of new roadway. Slopes will be 2 on 1.

Burgess Builds Alabama Interstate Highway Link

A. E. Burgess Co., Inc., Birmingham, Ala., pushes 3½-million yard excavation job in constructing 13-mile section of Interstate 65. Firm moves 30,000 yards of material per day.

CONSTRUCTION on the federal system of interstate highways is shifting into high gear. Statistics released by the Bureau of Public Roads, U. S. Department of Commerce, show that $2.844 billion has been earmarked for interstate projects this year, exceeding by $755 million the amount set aside in 1958.

State highway departments are making every effort to keep pace with this accelerating program. Alabama is a good example. It has let 63 interstate contracts over a three-year period ending June 1, 1959, according to unofficial figures. They include 31 grading and drainage contracts, 25 bridge contracts, three contracts for concrete and bituminous paving, and several miscellaneous contracts. Their total value is estimated at $58.9 million.

A large share of the construction on Alabama's interstate network has been done by A. E. Burgess Co., Inc., Birmingham, Ala. Burgess has successfully bid six of the 63 interstate contracts, accounting for about 18% of all work —less bridges—according to the unofficial figures. Two of Burgess' contracts have been for concrete paving and four for grading and drainage.

Adjoining Jobs

When the photos for this article were recently taken, Burgess was concentrating its efforts on two grading and drainage jobs at Cullman, Ala., some 55 miles north of Birmingham. They were adjoining projects, totaling some 13 miles of construction on Interstate 65, a north-south route that will run from Chicago, Ill., to Mobile, Ala. The north contract was successfully bid at $1.1 million; the south contract was worth $1.4 million. Equipment spreads were pushing both simultaneously.

Specifications called for three diamond-shaped interchanges along the 13 miles of roadway. Burgess had to build 18 culverts and install 19,500 feet of 18 to 54-in. diameter drainage pipe. Excavation requirements ran to 3½ million yards of unclassified material, about half of which was rock. Six bridges will span the highway. These were to be constructed under separate contracts.

In its excavation work, the Burgess firm had to average 30,000 yards of material per day to stick to the tough time schedule it had set up for itself. Dirt

consisted of sandy clay, which was moved with crawler and rubber tire tractors pulling Cat scrapers. A Bucyrus-Erie 54-B, two Northwest 80-D's, a Marion 93 (all 2½-yd. machines) and a 1½-yd. Northwest Model 6 shovel did the rock-digging. They swung broken shale, limerock and sandstone over 22-ton International 95 Payhaulers and 22-ton Euclid end dumps. Allis-Chalmers rear-dump rock haulers and an Athey rear-dump rock wagon made up the rest of the hauling fleet.

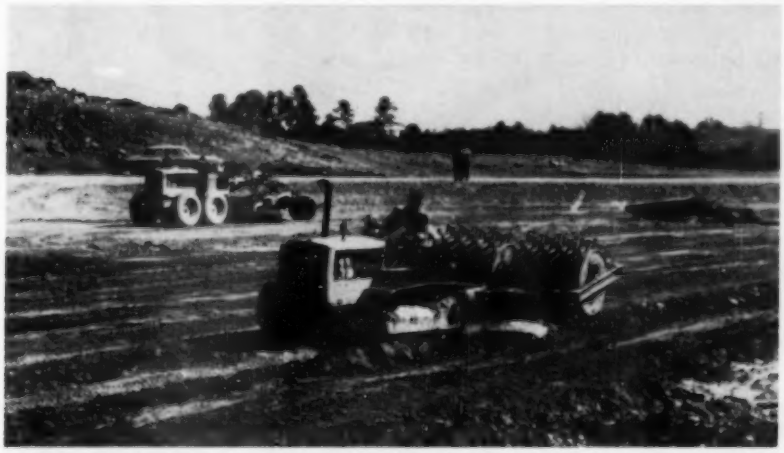
There were 24 major cuts along the 13 miles of new roadway. The deepest was a sidehill rock cut measuring 167½ feet from its toe to the peak of its slope. Shovels loaded 210,000 yards of material out of this cut which was about 350 feet long. A second huge cut contained 240,000 yards of rock but was not as deep. The largest fill was 58 feet in depth and 1,400 feet long. Slopes on the dirt cuts and fills had to be 2 on 1; in rock they had to be ½ on 1.

Sub-base for the highway consisted of selected soil taken from the immediate grading area. It was laid in two 6-in. layers, each layer being compacted to 95% of Proctor density with Hyster grid rollers and Tampo sheepsfoot rollers.

The base course was to be aggregate of sandstone and limerock crushed to No. 4 and No. 7 mesh. Plans called for hauling the aggregate with a fleet of large-capacity trucks from a quarry at Bangor, Ala., 15 miles from the job site.

Completed, the highway will be a four-lane limited access route. Its travel lanes will be divided by a 2½-ft. depressed median strip 35 to 40 feet wide. A 24-ft. wide, 10-in. blanket of concrete will support traffic. Shoulders 10 feet wide will have a 4-in. coat of bituminous asphalt.

A 22-ton Euclid end dumps its load in fill. Excavation requires 3½ million yards of material, half of which is rock.



(Center) Perched precariously near the edge of a high sidehill rock cut, drill sinks 7⅞-in. blast holes in a formation of shale, limerock and sandstone. (Above) Sheepsfoot roller works over the subbase which is compacted to 95% Proctor density.

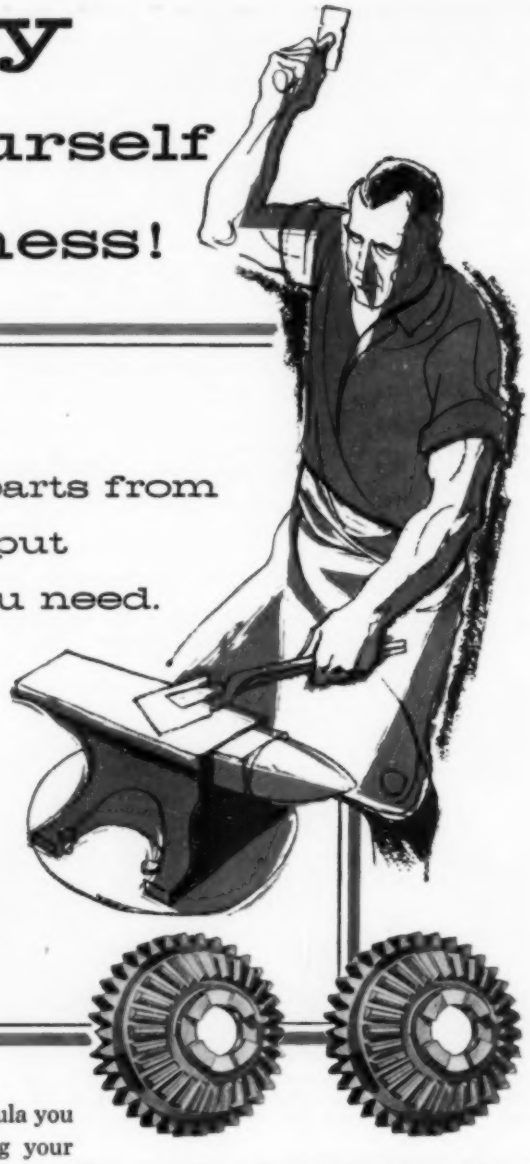
A good preventive maintenance program and complete in-the-field repair facilities have kept the jobs moving fast for Burgess. A B. F. Goodrich tire service truck is available at all times. In addition, the entire operation has been coordinated with a General Electric two-way radio system, with each supervisor's pick-up having a sending-receiving set. The field office also has radio contact with headquarters at Birmingham.

Herman Kerr acted as projects superintendent for Burgess. J. R. Hester was shovel and blasting superintendent. Jim McCoy was chief mechanic.

A 2½-yd. shovel swings dipper of blasted rock over 22-ton International 95 Payhauler. Shovel loads out between 3,000 and 3,500 yards of material per 10-hour day.

Easy Way

To Save Yourself Out of Business!



LESSON No. I:

Buy all replacement parts from the "'smithy." He can put together whatever you need.

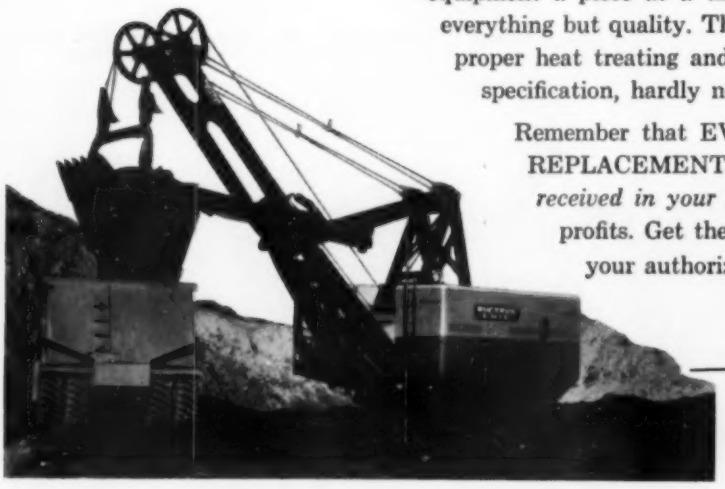
All parts you buy from him will be a nickel cheaper than those you buy from the authorized dealer.

The "'smithy" has been hounding you for business . . . give him a break.

The "'smithy" can give you spare parts that look just like the real thing. Same color, same size.

That's the surest formula you can find for selling your equipment a piece at a time, too. The "'smithy" can reproduce everything but quality. The kind of quality you need comes from proper heat treating and flame hardening, proper metallurgical specification, hardly noticeable special shaping of every part.

Remember that EVERY GENUINE BUCYRUS-ERIE REPLACEMENT PART is the *same high quality as you received in your new machine.* Don't gamble with your profits. Get the *right* parts when you need them from your authorized Bucyrus-Erie distributor.



BUCYRUS ERIE®

Builds Better Equipment

NOT in the Contract

There came a frantic ring over the phone at police headquarters, and a wild voice said, "There's a burglar in Miss Spinster's bedroom at 222 Main Street. Send the police at once, for heaven's sake!"

"All right," answered the sergeant. "Is this Miss Spinster speaking?"

"No," came back the anguished voice, "this is the burglar."

Doctor: "I don't like the looks of your husband."

Wife: "I don't either, but he's all that was available."

The sales manager had the equipment salesman on the carpet for nonperformance.

"Don't you talk to me like that!" said the salesman. "I take orders from no man."

"That's what the record shows," said the sales manager, "but I didn't know it was a matter of principle with you."

The third grade teacher carefully explained that a group of sheep is a flock, and a group of quail is a bevy. Then she asked for the names of other animals.

When she came to camels, a child timidly suggested: "A carton."

An Englishman fell madly in love with the daughter of a Scotsman, who would only consent to the marriage on the following conditions: he would give no dowry; the young man would have to buy the trousseau, pay for the wedding and the reception; and also make an allowance to the parents-in-law.

The Englishman, who was very much in love, agreed to everything. "Then you agree to my marrying your daughter?" he asked.

"Never," answered the Scotsman absolutely furious. "Let my daughter marry a man like you, who spends money so recklessly! Never!"

One of the airlines made it a practice to give its passengers sticks of gum which were labeled: "To prevent unpleasant ear pressure during takeoffs and landings."

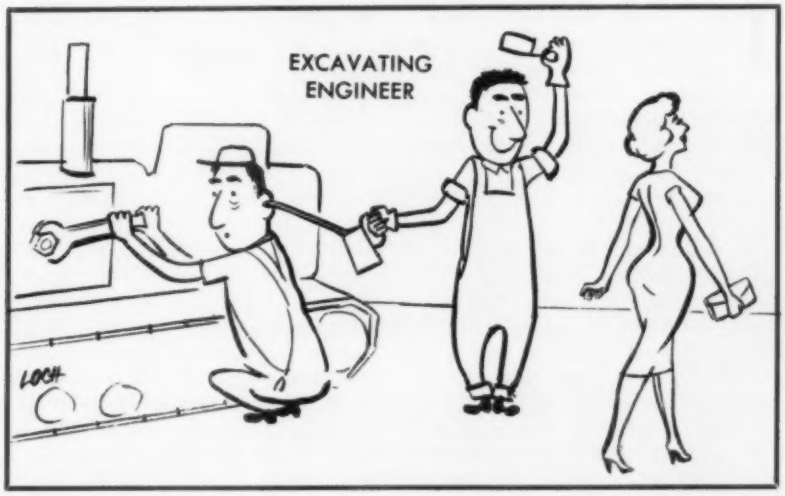
On one trip, an elderly woman plaintively appealed to the stewardess: "Help me get this stuff out of my ear. It hasn't done me a bit of good, anyway."

Angry father to son: "Why don't you get out and find a job? When I was your age I was working for $3 a week in a store, and at the end of five years, I owned the store."

Son: "You can't do that today, Pop. They've got cash registers."

A member of the Harvard University faculty, noted for his tact, was awakened at 4 a.m. by his telephone. "Your dog is barking and keeping me awake," said an irate woman's voice.

The professor thanked her and hung up. The following morning at four the woman's telephone rang. "Madam," said the professor, "I have no dog."



An elephant escaped from the Bronx zoo and made its way to the backyard of a Brooklyn housewife where it began pulling up cabbages with its trunk and eating them.

The housewife, who had never seen an elephant, phoned the police department in terror and reported a huge animal was in her garden pulling up cabbages with its tail.

When asked by the sergeant what it was doing with the cabbages, the woman replied, "You wouldn't believe me if I told you."

After the doctor checked the patient over, the physician asked, "Have you been living a normal life?"

"Yes, doctor."

"Well, you'll have to cut it out for a while."

A TV salesman had taken in a lot of used sets as trade-ins on new models and was desperately trying to peddle some of them. "This set is in excellent condition," he reported to a prospective customer who had questioned him about one of them. "Why, it was owned by a little old lady with weak eyes."

American men, they say, never know what to do with themselves when they retire.

As one put it: "I get up early, read the obituary column and if my name isn't there, I go back to bed."

Salesman: "I've been trying to see you for a week. When may I have an appointment?"

Executive: "Make a date with my secretary."

Salesman: "I did, and we had a swell time, but I still want to see you."

Two youngsters were standing on a street corner when one noticed a classy mauve sightseeing bus pass. Turning to his companion he said, "Man, dig that crazy purple people seater!"

The shovelrunner and his new bride spent their first night in a rustic hotel. The husband went down to the dining room the next morning for a quick breakfast and, on returning to the second floor, he noticed to his horror that none of the rooms had numbers. In trying to find what he hoped was his room, he knocked on a door gently, purring, "Honey, honey. Oh, honey, honey?"

From within came an answering bellow. "This is a bathroom, you idiot, not a beehive."

Oil Show covers 30 acres containing $500 million worth of exhibits. A forest of tall oil rigs and crane booms point skyward.

Oil Show Displays Latest Pipelining Equipment

THE "world's fair" of the petroleum industry broke all records for attendance and viewer interest, according to officials of the International Petroleum Exposition. Pipelining equipment was well represented among the wide range of exhibits at the IPE Oil Show held May 14-23 in Tulsa, Okla.

An estimated 550,000 visitors inspected the products of more than 2,000 exhibitors, representing every branch of the oil industry. On display was $500 million worth of equipment used in exploration, drilling, production, refining, pipelining, natural gas and the petrochemical fields. Many of the exhibits were huge and costly. One is said to have represented an investment of close to $10 million for equipment models and a large permanent pavilion on the show grounds.

Overseeing the IPE exhibits was "Golden Boy," a 60-ft. gilded figure of an oil country roughneck climbing Mid-Continent Supply's towering oil rig. Rated the largest single-industry trade show in the world, the IPE had 30 acres of exhibit space and 70 buildings. Firms showing products were from Canada, England, France, Germany and Mexico as well as the United States.

An unusual piece of machinery from overseas was a giant French truck which the manufacturer—Automobiles M. Berliet of Lyon, France—claims to be the largest in the world. The truck has six tires which stand eight feet high.

Ground pressure of the tires is 14 pounds per square inch.

FWD Corp., Clintonville, Wis., a major supplier of trucks for hauling oil supplies and equipment, showed a balloon-tired four-wheel-drive Teracruzer truck designed for moving heavy loads over swamp country.

Bucyrus-Erie Co., South Milwaukee, Wis., had two separate exhibits—one featuring crane-excavators and the other drilling equipment. Models at the first booth were the ¾-yd. model 22-B Hi-Walker hoe and the new 45-ton capacity 30-B Transit Crane. The 22-B Hi-Walker features a special tractor-type mounting for extra high ground clearance and maneuverability on rough pipelining terrain. The carrier-mounted 30-B Transit Crane was demonstrated with 110 feet of boom and 30-ft. jib. The machine can also be used as a hoe, shovel dragline or clamshell.

A machine of interest to pipeliners at the Bucyrus-Erie drill exhibit was the new Winkie core drill. The Winkie is a 45-lb. portable diamond drill which can remove cores up to 8 inches in diameter. Some of its applications are obtaining concrete cores; grout holes; small-diameter blast hole drills; and drilling conduit holes in masonry at any angle.

Insley Mfg. Corp., Indianapolis, Ind., offered two new excavator models. The type M model is a ¾-yd. hoe mounted on 12-ft. 6-in. crawlers with 30-in. shoes. Type WT is a 1-yd. hoe mounted on 14-ft. crawlers with 36-in. shoes.

New Technique

Typical of the latest ideas introduced at the show was Caterpillar's newly-developed seismic analysis technique designed to determine the rippability of subsurface rock formations. A tool offered to pipeliners for opening up rocky trenches was the 320-hp Cat D9 dozer equipped with a 7-ft. Kelley ripper capable of shattering rock to full depth ahead of trenching equipment.

Other displays included the largest Cat pipelayer, the new Series H No. 583 pipelayer with 137,000 pounds lift capacity at 4-ft. overhang; the D311 Series H electric set; and a D311 Twin Arc welder mounted on four-wheel running gear.

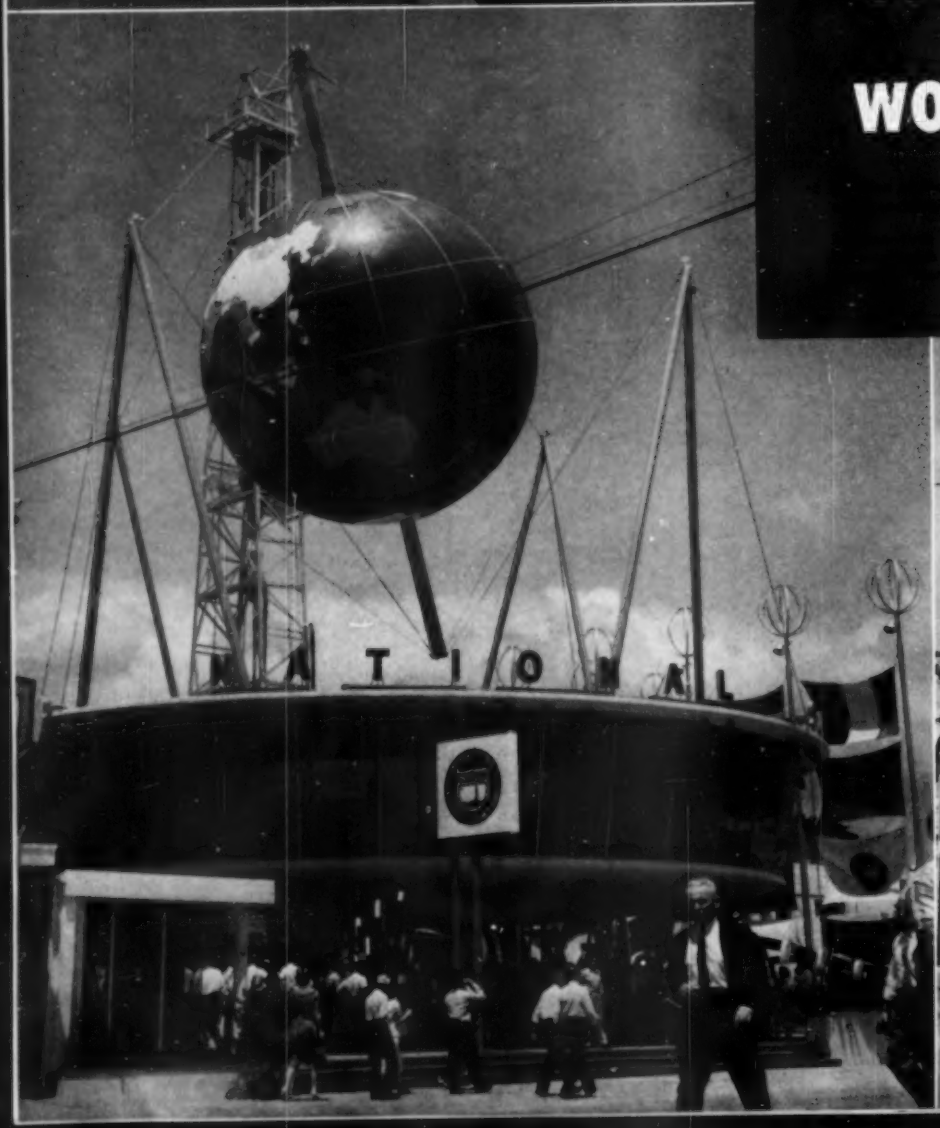
Eight pioneer oil men were honored on Old Timers Day, May 17. William L. Connelly, Tulsa, one of the founders of Sinclair Oil & Refining Corp., was named "Pioneer of Pioneers." The seven "Grand Old Men of the Oil Industry" are S. Miller Williams, Robinson, Ill., pipeline and transportation; Edmond C. Breene, Oil City, Pa., production; William Cassidy, Bayonne, N. J., refining; Edward I. Hanlon, Tulsa, natural gasoline; Frank Hinderliter, Tulsa, supplies and equipment; Wiley B. Hissom, Tulsa, drilling; and Frank H. Lerch, New York, natural gas.

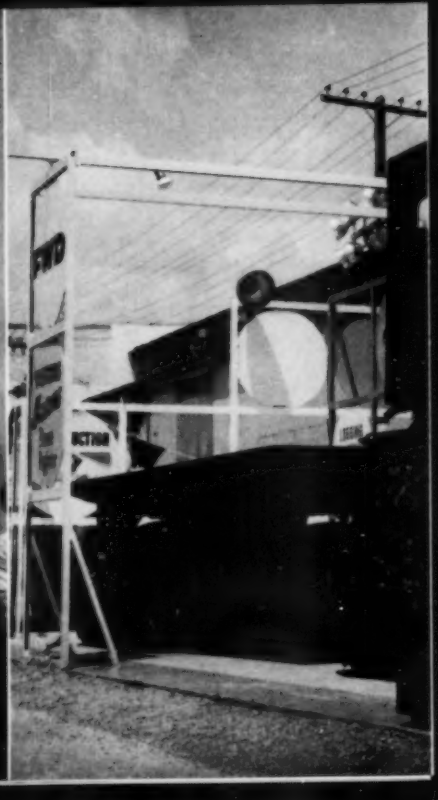
(Left) A familiar sight at the Oil Show grounds was this 280-lb. lioness owned by veteran oilman Charles E. Hipp, Graham, Tex. An experienced scene-stealer, the big female is shown crowding in on a demonstration of the Winkie core drill. (Right) Hipp gives "Blondie" a long drink of cold water.

S. Miller Williams (center), retired president of Williams Brothers, Tulsa, was honored as "Grand Old Man of the Oil Industry" in pipeline and transportation. With him are G. S. Conners (left) consultant and retired vice president of Williams Brothers, and Jack Moler, assistant sales manager of Caterpillar Tractor Co.

Seen at the Oil Show . . .

WORLD'S BIGGE





ST TRADE SHOW

"1960 MODE

BIGGER! BETTER! STRONGER!

The first "1960 Model" Marions—35-M, 37-M and 43-M—are coming off the assembly line.

They have major, new features. Significant improvements. Refinements that make these machines work harder, faster, longer. Easier to use, to adjust.

Marion sincerely believes these bigger, better, stronger machines give you more for your excavator dollars—in work output and long years of dependability.

Review the partial list of new features on the "1960 Models" of these famous Marions—they are new reasons you should put them on your jobs today. See your Marion distributor.

35-M

crawler mounted truck crane wagon crane

New 1960 Features of Marion 35-M and 37-M

1 - Improved digging brake; increased adjustment accuracy, more positive locking.
2 - Safer, more positive swing lock with independent air control.
3 - Stronger, longer-life hoist pinion and gear.
4 - Bigger, stronger hoist friction housing.
5 - Greater protection for swing clutch air lines.
6 - Greater flexibility and smoothness in swing clutch.
7 - Higher speed, more rugged boomhoist.
8 - Increased overhead visibility for long boom work.
9 - Full-revolving fairlead with anti-friction bearings.
10 - Gantry improvements for truck crane and hoe.
11 - Hoe front-end refinements.

MACHINE	Shovel Capacity	AVAILABLE AS				
		Hoe	Crawler Crane	Truck Crane	Wagon Crane	Special Crane
35-M	¾	Yes	Yes	Yes	Yes	—
37-M	—	—	—	Yes	Yes	—
43-M	1	Yes	Yes	Yes	Yes	—
362	1½	Yes	Yes	—	Yes	Yes
93-M	2½	Yes	Yes	—	—	Yes
101-M	3	—	Yes	—	—	—
111-M	4	—	Yes	—	—	—

L'' MARIONS

MAJOR IMPROVEMENTS!

37-M
truck crane wagon crane

43-M
crawler mounted truck crane wagon crane

New Features Marion 43-M

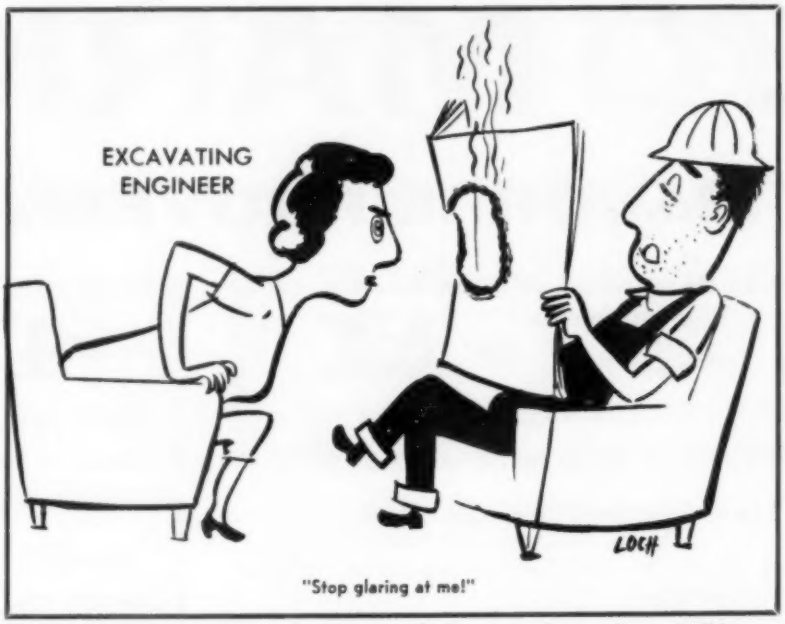
1 - Much bigger lifting capacities without outriggers.
2 - Faster, smoother swinging through use of conical, adjustable hook rollers mounted on tapered roller bearings.
3 - Split lagging for increased job adaptability and ease of maintenance.
4 - Bigger diameter boom hoist clutch standard for truck crane, optional for crawler mount.
5 - Improved operator visibility; cab forward 19".
6 - Improved two-position gantry.
7 - Full-revolving fairlead mounted on tapered roller bearings.
8 - Pin-connected, folding crane booms for crawler machine.
9 - 40-foot basic boom for truck cranes with deep throat for high work; maximum boom and jib combination 160 feet.
10 - Wider clutch and brake housing for smooth, positive control.

Really big capacity where it does you the most good - over the side without outriggers!

You get MORE with MARION

MARION POWER SHOVEL COMPANY
MARION, OHIO, U.S.A.
A Division of Universal Marion Corporation

News from the Field



"Stop glaring at me!"

Top Award Film

A "top award" for excellence in nontheatrical films has been awarded to Hercules Powder Co., Wilmington Del., for its entry in the Annual American Film Festival in New York City.

Hercules' 16-mm color film, *Blasting Vibrations—Cause and Effect*, was one of 450 films entered in the festival. It was chosen for the blue ribbon award in the sales and technical training category.

The festival is sponsored by the Educational Film Library Assn.

Blasting Vibrations is an educational and instructional film explaining what goes on in the earth when a blast of explosives is set off, and what this means in terms of the effect on structures, such as a typical house. In one sequence in the film, a portable seismograph is used to show that a dynamite blast produces less vibration than a door slamming, or high heels walking across a kitchen floor.

Dr. L. Don Leet, professor of geology at Harvard University and head of Harvard's famed Agassiz Seismographic Station, is narrator of the Hercules film.

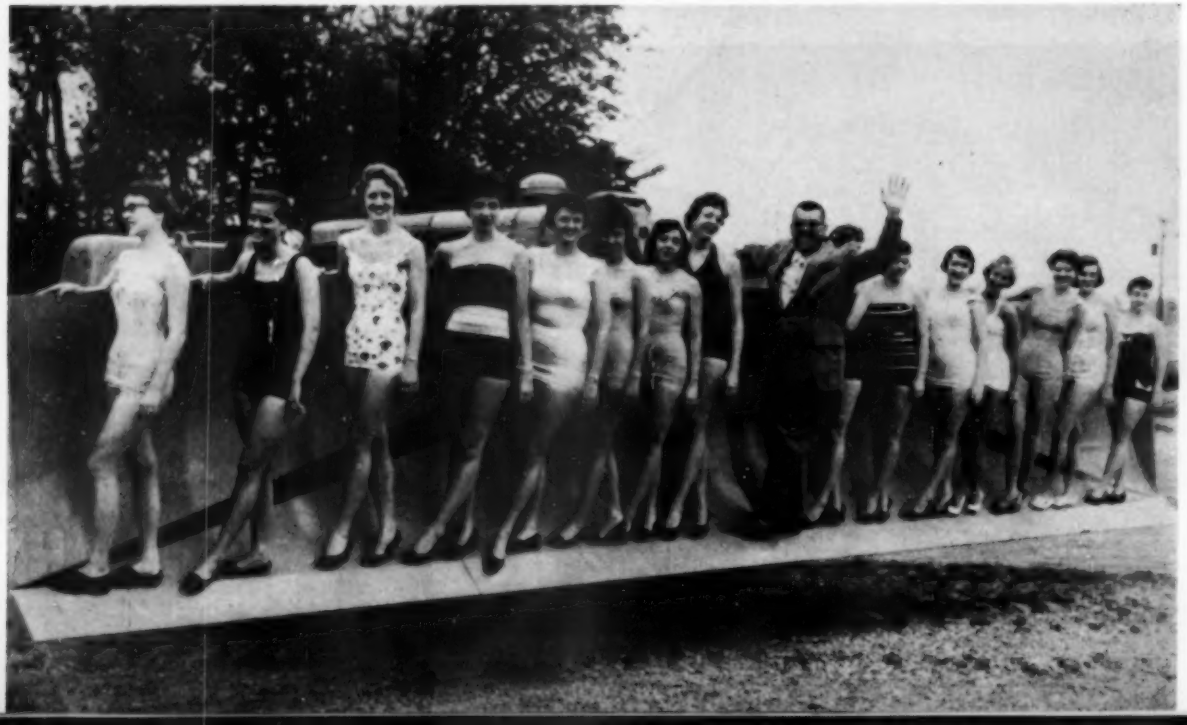
The American Film Festival honors were awarded at an annual assembly of nontheatrical producers, sponsors, distributors and educators in New York City, attended by more than 2,000 registrants from the United States, Canada, Europe, Africa and India.

Big Job Awaits Biggest Bulldozer

The world's biggest bulldozer blade built for the Johns-Manville plant near Lompoc, Calif., is designed to do a job which previously taxed two bulldozers.

The giant blade, built by Balderson, Inc., Wamego, Kan., measures 30 feet long and 60 inches high. It will be used in mining diatomaceous earth. Diatomaceous earth, widely used in the chemical industry, is a lightweight sedimentary deposit made up of skeletons of ancient sea life. In mining this material at the California site, the overburden is loaded into bottom-dump wagons which convey it to the disposal area. As the material is dumped, the big Balderson blade moves the entire load in one push over the edge of the fill. To keep up with the endless procession of trailers

Fifteen (count 'em) bathing beauties and one smiling male pose on the 30-ft. long Balderson bulldozer blade mounted on a D9.



loading, hauling, dumping and returning for another load, the blade must be of giant proportions and the tractor able to handle it efficiently.

The 30-ft. blade is attached to the Caterpillar D9 tractor by means of standard push arms and braces, and special braces reaching to the outer wings and top edges of the blade. Total weight of the bulldozer only is 11,240 pounds.

The Balderson BD9S-30 bulldozer was designed especially for the Johns-Manville operation by the Kansas manufacturer, in cooperation with Caterpillar Tractor Co., and Shepherd Machinery Co., Balderson-Caterpillar dealer in Los Angeles, Calif.

ASCE To Name Outstanding Engineering Achievement

The outstanding civil engineering achievement of 1959 in the United States will be named by the American Society of Civil Engineers, New York City, according to an announcement of its board of directors.

All facets of civil engineering activity will be eligible for the award, which will be an appropriate plaque to be presented the winning project sometime early in 1960.

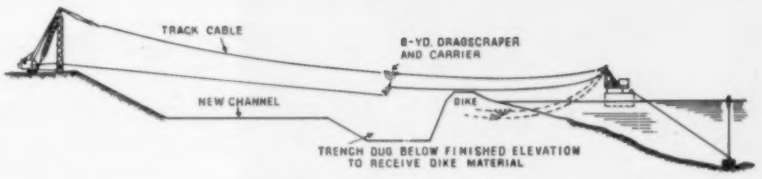
The fields of activity which will be concerned include bridges, waterway structures, roads, water supply, flood control dams, power dams, fuel power plants (including nuclear), airport developments, sewage disposal and military projects with civil engineering aspects.

Nominations for the 1959 award will be made by the directors of the 15 districts of the society, and final selection will be made by a jury of judges composed of technical press editors.

Super Highways Carry Holiday Traffic Safely

The safe-driving advantages of high-standard interstate-type express highways were strikingly illustrated over the recent Memorial Day week-end. While at least 310 traffic deaths occurred on the nation's highways, the American Bridge, Tunnel and Turnpike Assn. reported that for the second consecutive year, there were no Memorial Day week-end deaths on the 16 major turnpikes which report statistics to the agency despite a traffic load of 157 million vehicle miles. Only three serious personal injury accidents were reported. When statistics are compiled for the Fourth of July week-end, they are expected to show a similar safety record.

Eight-Yd. Sauerman DragScraper Cuts Seaway Dike Removal Costs



Atlas Construction Co. Ltd., Montreal, Que., had the job of enlarging the St. Lawrence Seaway channel near Iroquois, Ont. An 8-yd. Sauerman Crescent DragScraper and four-wheeled carrier was used with a crane to remove the perimeter dikes composed of tough digging glacial till and to backfill the trenches.

The hoisting line of the crane, used as a track cable for the Crescent and carrier, ran through a block on the boom tip to a 25-ft. tail tower mounted on a 20 x 40-ft. barge. The structural steel spud mast used to support the boom was pin-connected to facilitate movement of the crane.

After inhauling to the trench, the 8-yd. Crescent was gravity-returned part of the way to the excavation. A single-drum hoist mounted on the barge tail tower controlled the backhaul cable used to complete the return cycle. The job was handled by two operators, one on the crane and the other on the barge. The operating span varied from 600 to 900 ft. Average DragScraper hauls were 300 to 600 ft.

This is a typical example of how a crane can handle a Crescent DragScraper of greater capacity than the original dragline bucket or clamshell. Larger machines can usually double their capacity with a DragScraper. Smaller units can handle about 50% more. Machine range is limited only by the spooling capacity of the hoist drums. It can reach farther, dig deeper under water and take material out of soft areas without the nuisance of mats and the hazard of undermining the crane.

DragScraper traveling down track cable on return to underwater dike. Barge is in background.

When the boom is supported by a strut, a DragScraper of still greater capacity can be used. The strut increases overturning resistance and allows a greater load to be imposed. Crescents used in conjunction with such supports increase the rated capacity as much as 4 to 1.

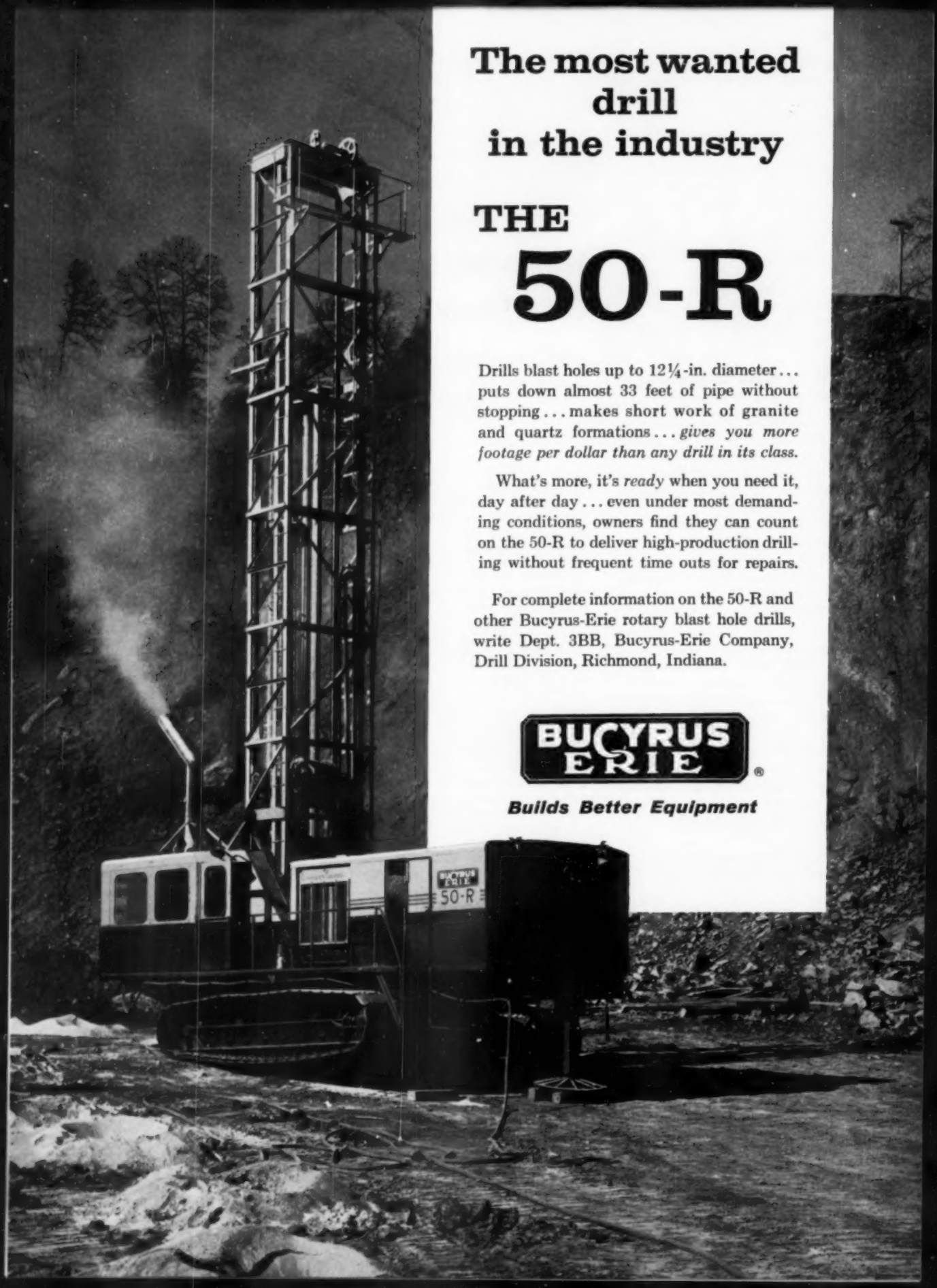
Many operators consider the Crescent DragScraper as standard auxiliary equipment. The DragScraper permits bidding on and getting those premium jobs that could not be handled without considerably more time and expense by other means.

Find out how much you can increase your crane's capacity. Write or call giving the make, model number and boom length of your machine. Field Report 228 and Catalog J gives more information on DragScraper operations with cranes.

SAUERMAN BROS., INC. 622 SO. 28th AVE. BELLWOOD, ILL.
Linden 4-4892 • Cable CABEX—Bellwood, Illinois

50th Anniversary Year

Crescent DragScrapers • Slackline and Tautline Cableways • Durolite Blocks



The most wanted drill in the industry

THE 50-R

Drills blast holes up to 12¼-in. diameter... puts down almost 33 feet of pipe without stopping... makes short work of granite and quartz formations... *gives you more footage per dollar than any drill in its class.*

What's more, it's *ready* when you need it, day after day... even under most demanding conditions, owners find they can count on the 50-R to deliver high-production drilling without frequent time outs for repairs.

For complete information on the 50-R and other Bucyrus-Erie rotary blast hole drills, write Dept. 3BB, Bucyrus-Erie Company, Drill Division, Richmond, Indiana.

BUCYRUS ERIE®

Builds Better Equipment

Equipment You Ought to Know About

Rock Dump

Manufacturer: Athey Products Corp., Department EE, 5631 W. 65th St., Chicago 38, Ill.

Claims: T-1 steel and new design are two factors that boost the payload, durability and operating efficiency in the PR619 rock-dump—the 25-ton member of Athey's new T-line.

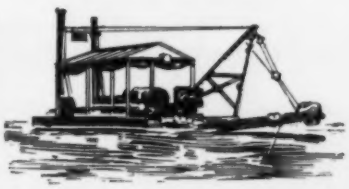
Athey's T-line trailers represent the first extensive use of T-1 steel in hauling. Chief advantage is the steel's exceptional resistance, even at −50° F, to impact abuse and abrasion. Its yield strength runs nearly three times that of structural carbon steel. The stronger and tougher T-1 steel of 100,000 minimum yield strength trims dead weight and allows 15% extra payload. The model PR619 hauls up to 20 yards, heaped on a 2 on 1 slope, or 25 tons—more than 2½ times its own weight.

The new design adds new job-tested features while incorporating the well-known features of the Athey line of rear dump trailers. The PR619 executes 90° turns for fast maneuvering and spotting in cramped quarters. Its low center of gravity permits high speeds on tricky hauls and fast cornering with safety.

ELLICOTT DRAGONS*

insure low-cost operation, in moving waterbound solids.

Ellicott "DRAGON" 10—Easily assembled, pumps mud, silt, sand and gravel through pipelines up to 2500 feet long; capacity 90-325 cubic yards per hour.



Ellicott "DRAGON" 8—Capacity 60-150 cu. yds. per hr. through pipeline up to 2000 ft. long. "Dragons" available with enclosed or tropical deck house, as shown.

Ellicott "Dragon" model dredges recognized the world over for efficiency, economy, versatility and portability . . . offer engineers, builders, contractors, the cheapest method of moving waterbound solids. And do it with the efficiency and economy possible only with a hydraulic dredge. Ellicott can supply you with a full line of spare parts and auxiliary equipment, plus expert engineering service. Write for free Bulletin No. 925.

*T. M. REG. U. S. PAT OFF. MARQUE DÉPOSÉE

ELLICOTT MACHINE CORPORATION

1619 Bush Street, Baltimore 30, Maryland, U. S. A.

Subsidiaries: Dragues Ellicott France, Paris, France; Ellicott de Mexico, Mexico City, Mex.; Ellicott Fabricators, Inc., Baltimore, Md.; McConway & Torley Corp., Pittsburgh, Pa.; Baltimore Foundry & Machine Corp., Baltimore, Md.

Successors to the floating dredge business of the Bucyrus-Erie Co. and the American Steel Dredge Co. Complete engineering sales and repair parts service. 1144

Big tires provide extra flotation and traction.

Other features include flared body top for bigger loading target at no increase in trailer width; spill deflectors, to retain load and protect tires and hydraulic system during loading; and reinforced cellular floor.

Self-aligning hoists, simple two-stage units with cylinders end-mounted in self-aligning bushings, operate free of bending stress. The unit dumps in 12 seconds with straight 57° dump angle off the lip. Speed of the PR619 ranges up to 30.2 mph with the new Caterpillar No. 619 tractor.

2½-yd. Shovel

Manufacturer: Manitowoc Engineering Corp., Department EE, Manitowoc, Wis.

Claims: Newest addition to the Manitowoc line of power cranes and excavators is the model 3100, a 2½-yd. shovel which is convertible to clamshell, hoe, dragline or crane. Although big in capacity, the model 3100 can be moved

Continued on page 50

RECOGNIZE THIS LOT?

It's the lot of a Caterpillar Dealer, one of over 300 in the U. S., offering you the best buys in used equipment!

No matter what you want in used equipment, no matter what the price range, your Caterpillar Dealer is headquarters for your best buy. No other dealer offers you "buys" with this protection:

BONDED BUY

1 **A "BONDED BUY"** up to $10,000 on used Cat-built equipment—your guaranteed assurance of satisfactory performance on *all* parts of the machine during the guarantee period.

2 **A "CERTIFIED BUY"**—his written guarantee covering units of any make.

3 **A "BUY AND TRY"** deal—his written money-back agreement on units of any make.

For the best buys in your area, to be *sure* of what you're buying, see your Caterpillar Dealer. You'll find him listed in the Yellow Pages!

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

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BEST BUYS IN NEW AND USED EQUIPMENT

New Equipment . . .

Continued from page 49

from job to job with small machine ease.

For movement by truck or train, complete crawler assemblies are easily removed bringing width and height well within ordinary shipping clearances. The self-removing counterweight feature aids in bulk strip-down. An overall outside width of 11 feet 1 inch maximum means the 3100 can be put on a standard flat car without extensive advance preparations or dismantling.

The shovel front end is designed with an alloy steel boom welded in elongated tubular form. The crowd mechanism of

the 3100 is carefully positioned to eliminate off-center strain on the drum shaft. A powerful, smooth disc-type clutch on main drive shaft powers the high speed retract.

The crawler base is engineered for longer life of service, minimum maintenance and permanent alignment of all components. A single-piece carbody is fastened directly to the crawler frames. Other features include a huge 9½-in. diameter alloy steel king pin; self-cleaning crawler drive; and simple jack adjustment of crawler treads through the use of adjustment shims. Regardless of cab position, the 3100 features positive steering in either direction and the ability to idle or lock either crawler.

Simplicity of design is also featured in the upper deck machinery. There are only 14 gears including the boom hoist. Rapid, safe raising and lowering of the boom is provided by the double drum boom hoist which equalizes pull on the boom and lessens cable wear.

Standard equipment includes modern air-controls and a torque converter. An optional accessory, which is especially convenient for steel setting or maneuvering in tight spots, is the independent swing.

250-cfm Rotary Compressor

Manufacturer: Ingersoll-Rand Co., Department EE, 11 Broadway, New York 4, N. Y.

Claims: Ingersoll-Rand has added a new 250-cfm size model to its line of Gyro-Flo compressors. This new size will supersede the Gyro-Flo 210 which has been a member of the portable rotary line for the past number of years.

The Gyro-Flo 250, with a completely new compressor system, offers nearly 20% more capacity in a unit that is smaller and more compact than its predecessor. It is driven by a larger, more-powerful engine, yet retains the same 1,800-rpm engine speed.

Fuel and air tanks are under housing and lockable cover. There's provision for easy inspection of all compressor rotor vanes. A 12-volt battery system permits fast starting.

The Gyro-Flo 250 offers a choice of two compressor-matched drives—the new General Motors 4-53 diesel engine or the Continental M-363 gasoline engine. It is available with 2 or 4-wheel mounting, or less running-gear for truck or skid mounting.

The new model is the result of users' suggestions and intensive research in the field. It incorporates new features plus many Gyro-Flo design features used for the past nine years.

Aluminum Transit Mixers

Manufacturer: Construction Machinery Co., Department EE, Waterloo, Iowa.

Claims: The first aluminum transit mixers to be built in the United States are now coming off the production line at Construction Machinery Co.

The aluminum CMC "Transcretes" are the result of several years of joint development work by Construction Machinery Co. and Kaiser Aluminum & Chemical Corp. engineers. A test model aluminum Transcrete was built by

Continued on page 52

THE TAKE-CHARGE D9

—built big and tough for the big, tough jobs

- 320 HP at flywheel.
- 30-ton weight.
- Exclusive Caterpillar oil clutch — plates cooled and lubricated with oil, rarely need adjustment.
- Optional heavy-duty torque converter transmission.
- Heavy-duty steering clutches with finger-tip steering. Power-boosted controls.
- Extra-rugged frame and final drive.
- Massive 7-roller track frame.

These are just the bare facts. No words and pictures can begin to describe the Caterpillar D9 Tractor. Engineered and built to take charge of any job, it's big, tough — and economical in the long run. See what it'll do on *your* job. Have your Caterpillar Dealer put it through its paces. That's all it asks.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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FIND YOUR CATERPILLAR DEALER IN THE YELLOW PAGES

KING OF THE CRAWLERS

New Equipment . . .

Continued from page 50

CMC over a year ago—and since then has been subjected to a program of rugged field testing throughout the nation. Made of a special, tough aluminum alloy developed by Kaiser—the new CMC Transcretes weight ⅓ less than steel models of the same size. This means a greatly increased payload—cuts down on the number of trips required to haul a given amount of concrete and provides savings in time, labor, fuel and maintenance. The reduced weight of the empty mixer returning to the plant would result in even more savings.

Weight of a 7-yd. aluminum Transcrete is approximately 4,600 pounds as compared to nearly 7,000 pounds for a conventional steel model. This wide margin in weight savings will be of primary importance in enabling the ready-mix industry to realize substantially increased legal payloads. The weight savings provided by CMC Aluminum Transcretes becomes especially

valuable in states where load limits are exceptionally low.

The new aluminum models have the same basic design features as CMC's line of steel models which are available in 4, 5, 5½, 6 and 7-yd. sizes. Features include swing-out hopper; right angle floating drive; all-weather water system; and progressive spiral drum blading.

Haulpak Trucks

Manufacturer: LeTourneau-Westinghouse Co., Department EE, 2301 N.E. Adams St., Peoria, Ill.

Claims: A new off-road hauler is described by LeTourneau-Westinghouse as "revolutionary." The truck is available in three sizes—27-ton and 32-ton end-dump models, and an 80-ton bottom-dump.

The units are called the "Haulpak" line, and are unusual because of their rugged simplified design. The Haulpak can't break a spring because it has no springs. Four big pistons, acting like giant shock absorbers, are used so that the truck rides on air, not steel. Conventional axles have been eliminated too; the "Hydrair" suspension system makes them unnecessary. There are no tie rods or exposed steering linkage either. The entire steering system is protected within or above the frame line, giving the Haulpak almost twice the front-end ground clearance of conventional trucks.

The Haulpaks are shorter than conventional trucks of comparable capacity. Its 130-in. wheelbase is about three feet shorter than most 22 to 30-ton haulers. As a result, it is extremely maneuverable. It can turn completely around in a circle of 44½ feet in diameter, which is about the same as the larger passenger cars.

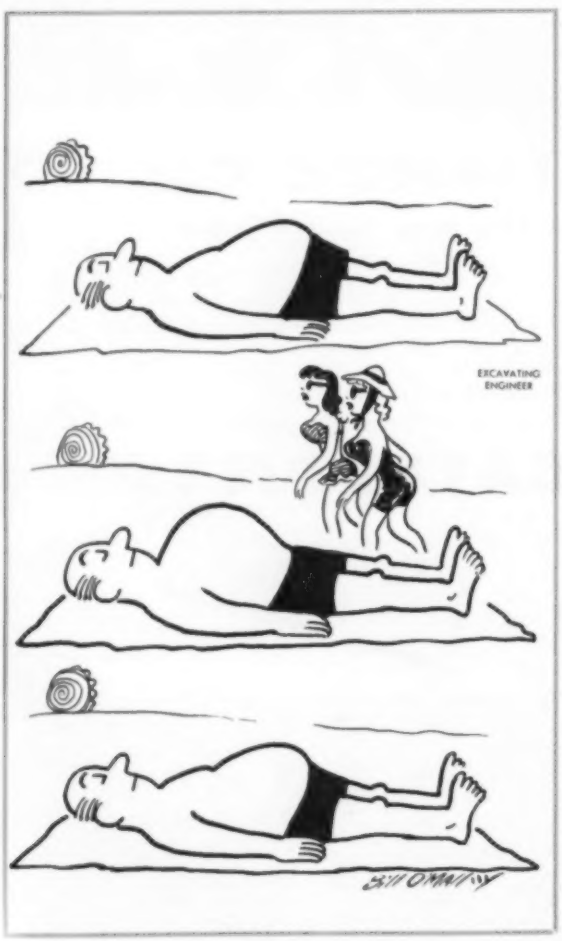
The 27-ton Haulpak model is powered by a Cummins 335-hp turbocharged engine and operates at speeds up to 35.4 miles per hour. With a Cummins 375-hp turbocharged engine, the 32-ton model has speeds up to 38.8 mph. The 80-ton Haulpak bottom-dump is powered by a Cummins V-12, 450-hp engine and operates at speeds up to 40 mph. All three have torque converters which provide four forward ranges and two reverse. They incorporate automatic lock-up to eliminate torque converter slip and utilize maximum engine rpm for higher truck speed.

Despite the Haulpak's big capacity, it is extremely easy to handle. Power steering and power brakes, are standard equipment. For further ease of operation and driver comfort, the option list even includes cab air-conditioning.

Use of the Hydrair suspension system and box-beam frame allows design of a new, better loading, better dumping body. While the Haulpak provides greater ground clearance its body cradles its load low, thereby lowering the center of gravity and improving stability. The smooth, clean body interior is free of a dump-retarding tail-lip and lets the twin hydraulic hoists raise the body to 70° for dumping full loads completely in only 15 seconds.

To keep wet, cold material from sticking to the body surface, an exhaust heated body is standard equipment. Exhaust circulates through the hollow box-section supports of the body, with outlets located at the extreme rear, away from the operator.

The braking system of the Haulpak is in reality two systems coordinated and controlled by the standard brake pedal. When descending grades under load where retarding is desired, the operator presses the pedal lightly. The first



stage of the pedal travel controls the Torqmatic retarder which is an integral part of the transmission. This slows the hauler instantly. When a full stop is desired depression of the pedal into the second stage applies the multiple-disc air brakes, in addition to the retarder. These brakes, which provide from 4,680 to 5,148 square inches of stopping surface, are air cooled and cleaned by filtered air under pressure from an independent compressor.

The 80-ton bottom-dump is a coal hauler designed for use in coal strip mining operations where big capacity haulers are desired to make extraction more economical. Body struck capacity of this 80-ton unit is 100 cubic yards.

Land Clearing Tool

Manufacturer: Rome Plow Co., Department EE, Cedartown, Ga.

Claims: The Rome K/G clearing blade is designed for clearing reservoirs and lakesites, right-of-ways, rangelands and many other land clearing tasks. It can also be used for building forest roads, fire breaks, and drainage ditches. A quick adjustment permits complete removal of stumps and root systems below ground.

The clearing blade cuts and windrows a wide swath of small to medium-size trees in one continuous pass. Large trees are cut individually. One of the most important advantages of this new blade is that it can cut exceptionally large trees, by first splitting and weakening them with a sharp "stinger." Because the same tool is used for both cutting and windrowing, the Rome blade is much faster and more economical than other methods.

In addition to fast and economical felling of large trees (it has cut trees 13 feet in diameter and cut their stumps level with ground in 20 minutes), the clearing blade rakes or "sweeps" the cleared area more cleanly than other methods, and the windrow is relatively free of dirt, assuring quick and cheaper disposal by burning. In cost studies the Rome K/G blades have reduced overall costs by as much as 60% over the conventional dozer and rake method. In addition, the area was left in a far better condition, since it was free of pot holes and the top soil was left relatively undisturbed.

The Rome K/G clearing blade is available through Caterpillar dealers in sizes for Caterpillar D9, D8, D7, D6 and D4 tractors. It is supplied either as a complete unit, including push frame, or as an attachment for use with Caterpillar "C" frames.

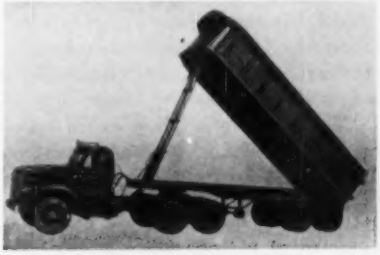
FOR 50 YEARS...
Finest in the Field!
Rely on the bucket contractors rely on. The Omaha Dragline Bucket gives full load with every cast. Perfect balance makes it easy to spot dump. Alloy steel cutting teeth stay sharp, tough and ready. Strike pay dirt now! Complete information and specifications await your letter.
DRAKE-WILLIAMS MOUNT • OMAHA, NEBR.
OMAHA
DRAGLINE BUCKETS

Semi Dump Trailer

Manufacturer: Jacob Press' Sons, Inc., Department EE, 501 W. 33rd St., Chicago 16, Ill.

Claims: A new series of Jacob Press' Sons semi dump trailers is available in 18 to 24-ft. lengths, with capacities from 16 yards and up. This new series is being introduced during the 100-year anniversary of the firm.

Features of the new units include double-cap top rail; I-beam frame, improved hoist packing; and choice of front mount or underbody telescopic hoist. The rear cross members and rear standards are welded to one integral unit.



Distance from ground to top of sides of the 20-yd. body is less than 9 feet. The body is 20 feet long with 11:00 x 20 14-ply nylon lugger tires.

300-Hp Loader

Manufacturer: Frank G. Hough Co., Department EE, 708 Seventh St., Libertyville, Ill.

Claims: Hough has added a 300-hp

Continued on page 54

TRIAL SAMPLES

Of World-Famous WHITMORE'S Lubricants NOW IN AEROSOL SPRAY-ON CANS!

HANDI-LUBE LIQUID GEAR COMPOSITION

For open gears, sliding surfaces—exclusive formulas eliminate metal to metal contact, keep wear on the lubricant not the metal—no breakdown even after prolonged use under water—available for every climatic condition—packaged in handy 16-oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

WIRE ROPE SPRAY LUBRICANT

Exclusive formulas for lubricating and protecting wire rope, chain, springs. Penetrates to the core of wire rope minimizing internal friction and increasing usable life up to 300%—special protective qualities absolutely eliminate corrosion—non-gumming qualities reduce "carry-back"—packaged in handy 16 oz. aerosol spray-on containers or in bulk containers—send for a free trial sample.

65 YEARS OF LEADERSHIP LUBRICATING THE FOLLOWING:

- Open Gears, Dipper Sticks, Cams
- Enclosed Gear Cases
- Wire Rope and Cable
- Hydraulic Units, Torque Converters
- Roller, Ball, and Sleeve Bearings
- Speed Reducers

Est. 1893

THE WHITMORE MANUFACTURING CO.

LUBRICATING ENGINEERS

CLEVELAND 4, OHIO, U.S.A. PHONE: VULCAN 3-7272

New Equipment . . .

Continued from page 53

model to its line of rubber-tired, four-wheel-drive Payloader tractor-shovels.

According to Hough, the new H-120 model has the highest dumping clearance, the longest reach and the most powerful engine of any tractor-shovel of its size and capacity range.

The maximum height of raised bucket is 19 feet 2½ inches with clearance to center of hinge pin of 14 feet 7½ inches. With the bucket dumped at 50°, clearance under the bucket edge is 10 feet 10 inches and the forward reach from the front tire is 3 feet 6 inches.

The new Payloader is powered by a turbo-charged Cummins NRT-6-BI diesel engine which develops 300 hp at 2,100 rpm. Optional engines will be available in the near future. Standard unit is equipped with 26.5 x 25, 14-ply tires.

The manufacturer's recommended load "carry capacity" is conservatively rated at 12,000 pounds. Buckets from 3 to 6 cubic yards are offered for handling various materials where the total load weight falls within the "carry capacity" range.

For digging operations, the H-120 has a powerful break-out force of 26,000 pounds, and the bucket can be tipped back 40° at ground level. As the boom arms are raised, this tip back continues to a maximum of 75° thus placing the load in a flat, horizontal position which reduces to a minimum the amount of spillage.

Special emphasis has been placed on both safety and stability. The new loader design has also made it possible to position the pivot point forward of the operator's compartment. Complete safety is provided since all moving members are out of the way of the operator. The lighter-weight, extra-strong, T-1 steel used in the boom arms contributes to the conservative rating and stability as well as to safety.

The H-120 features a four-speed, forward and reverse, power-shift transmission and matched torque-converter which provides travel speeds up to 28 mph. The filtered hydraulic system is closed and pressure-controlled. Both air brakes and power-steering are standard. Dual foot pedals give the operator a choice of braking with transmission engaged or disengaged.

The H-120 is equipped with power-transfer differentials. When slippery ground conditions are encountered, additional torque is automatically transferred to the wheels with the best footing.

Demolition Grab

Manufacturer: Williams Bucket Div., Department EE, Wellman Engineering Corp., 7000 Central Ave., Cleveland 4, Ohio.

Claims: A demolition grab for razing brick wall construction is being built by Williams Bucket.

The surprisingly lightweight grab, approximately the same size as a ¾-yd.

clamshell bucket, takes large chunks of brick wall for loading directly into trucks. Its adjustable jaw plates of T-1 steel accommodate walls of varying thicknesses. It is designed to reduce breakage on jobs where bricks are to be reclaimed. It also eliminates excess rubble and extensive clean-up.

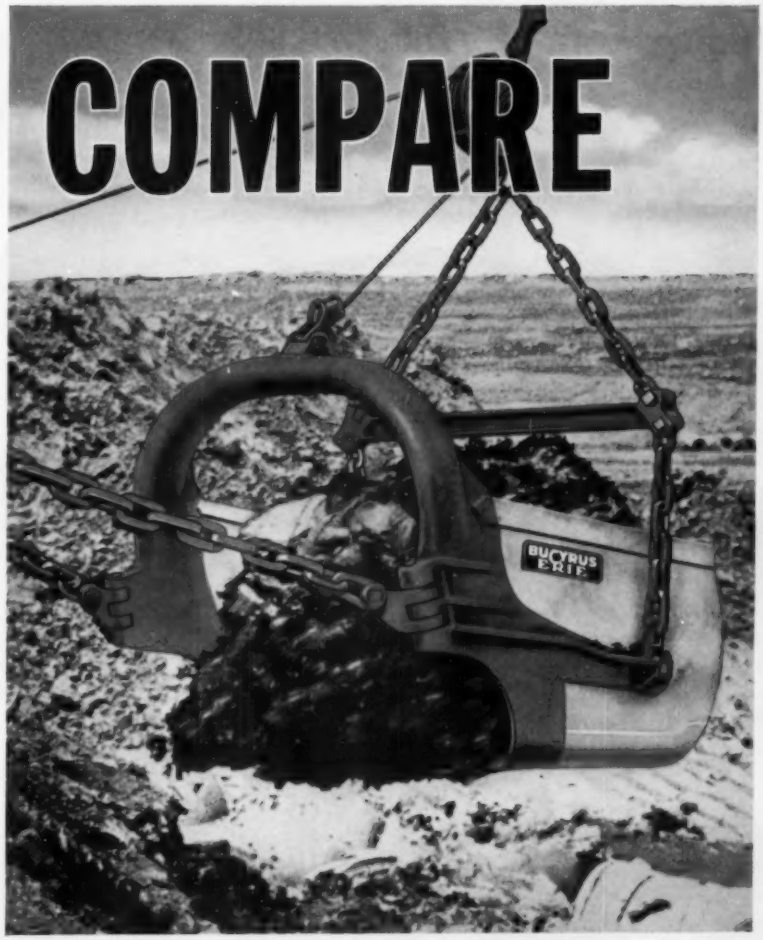
Pocket Penetrometer

Manufacturer: Soiltest, Inc., Department EE, 4711 W. North Ave., Chicago 39, Ill.

Claims: The bearing capacity of cohesive soils can be determined rapidly in the field using the new model CL-700 pocket Penetrometer manufactured by Soiltest.

New features on this widely used instrument make possible simple, fast and accurate evaluations of the bearing capacity of a soil on field exploration or on construction sites as well as in preliminary laboratory studies. The penetrometer has been widely used to obtain uniformity in soil strength classifications. In using the penetrometer guesswork in soil classification can be eliminated.

The new features include a maximum recording ring on the barrel of the calibrated piston; a direct reading scale in unconfined compressive strength or bearing capacity in tons per square foot or kilograms per square centimeter; knurled sections on the handle for easy gripping; and a new smaller compact size. The maximum indicating ring stays in fixed position after the reading has been taken and can be returned to its zero position by a flick of the finger. The instrument is supplied in a plastic carrying case with a belt loop.



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compare output Watch the "slicing action" lip take a faster bite, regardless of material . . . watch the tapered basket fill smooth and fast . . . watch it ride through the swing, smooth and even without bobbing and spilling . . . and watch the high-speed dump made possible by a clean inside design and high arch!

compare economy Ask others about long-life Bucyrus-Erie buckets! BECOLOY — a specially developed Bucyrus-Erie alloy — not only makes the buckets lighter, but adds great strength and wearing ability with higher impact resistance.

Your Bucyrus-Erie distributor will give you complete information on the complete line, all types, including solid and perforated; light, medium and heavy-duty. Call him today, or write Bucyrus-Erie Co., South Milwaukee, Wisconsin, Dept. 1RE.

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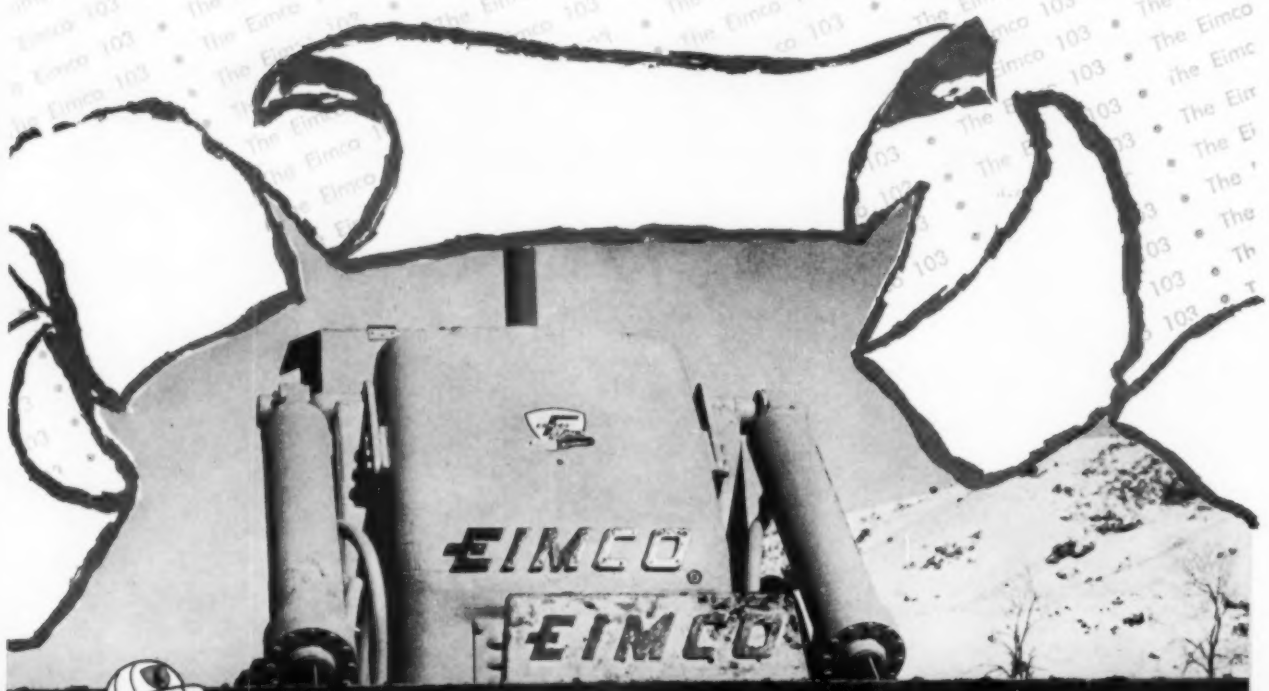

the EIMCO 103

SERIES OF MODERN TRACTORS AND TRACTOR UNITS . . .

the EIMCO 103

NEW Power! NEW Maneuverability! NEW Unitized Construction!

The Eimco Corporation, pioneer in MODERN Tractor engineering and design, now brings you **the first modern tractor** specifically engineered to fill your size, power and work needs in the medium size tractor field **. . . the 103 series!**

Eimco 103 — Tractor only
Eimco 103 — with Dozer attachments
Eimco 123 — Efficient Front End Loader
Eimco 133 — Special Steel Mill FEL
Eimco 143 — Log Loader

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100 horsepower . . . General Motors or Cummins Diesel Engines of latest modern design.

Quadra-Torque . . . the new modern power team with four forward and four reverse gears. Permits shifts from any gear, forward or reverse, to any other, at any tractor or engine speed without slowing or stopping the tractor.

Unidrive and Dual Final Drives . . . Eimco engineered and built, with independent track operations for smooth, safe spin turns without track-drag. Simple, reliable, powerful!

Up to 33,000 lbs. drawbar pull . . . with adequate traction, through the Quadra-Torque-Unidrive-Torque Converter power team!

Unitized "Stress Flow" Construction . . . newest Eimco exclusive. Large, strong steel castings are molded to shape required, with thickness varied as required to withstand maximum stresses. Main frame, final drive and center housings one strong casting! No bolts or welds. Components readily accessible.

Up-front operator position . . . for maximum control and visibility.

Simple controls . . . with power shifting. No clutch. No stalling. Flip of a lever controls speeds, forward, reverse, insures more work output.

Just like your modern automobile, the modern Eimco makes operations easier, faster and more economical . . . automatically.

Investigate the many exclusive advantages of the New Eimco 103 line of Modern Tractors

Write for specifications on any of the units in this new, modern series of tractors. Address Dept. AN - 1 — The Eimco Corporation, P. O. Box 300, Salt Lake City 10, Utah. We'll be glad to demonstrate the unit that best fits your needs right on your own job, upon receipt of a request on your letterhead.

No other machine can surpass Eimco's rugged custom-built construction. Let us demonstrate the modern Eimco 103 and the famous "Big E", the Eimco 105 Series, to you and your men. You'll agree that here are machines built for the job . . . tailor-made to fill your requirements with rugged long-life quality in every component.

Want all the facts? For comparative fact sheet, listing the vital statistics of all leading makes of tractors and front end loaders, write on your letterhead to Dept. AN - 2, P. O. Box 300, Salt Lake City 10, Utah.

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Same formula as famous Kroil that has pleased 14,000 industrial users for 10 years or more.
Loosens stuck together metal parts, bushings, bearings, bolts, screws, pipe, etc., "anything from an embalmer's needle to a bulldozer," one customer said.
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KANO LABS. 1083 Thompson Lane Nashville 11, Tenn.
12-OZ. CAN $2.
F.O.B. NASHVILLE
CASE OF 12 $18.75

New Trade Literature

Subject: **Diesel Engines**

Content: A 12-page booklet gives power ratings and overall dimensions on over 100 models in GM Diesel's new all-purpose power line. These units include in-line, "V" and turbopower engine models. Described as the most complete engine line-up in diesel history, the GM line consists of single, multiple and turbopowered units ranging from 20 to 1,650 hp in only three cylinder sizes. Four new Series 53 engines which offer efficient, compact and lightweight diesel power in the 20 to 195-hp range are displayed.

Where to get: GM Diesel distributors and dealers or Detroit Diesel Engine Div., Department EE, General Motors Corp., Detroit 28, Mich.

Subject: **Pipeline Backfiller**

Content: The Cleveland 190 pipeline backfiller—with its new water-cooled throw-out clutch—is described in a 6-page folder. The throw-out clutch is cooled by continuous circulation of water from the engine's cooling system. It prevents overheating, provides accurate day-long continuous casting control, maintains proper clutch adjustment and adds hundreds of hours to the work life of the clutch components. Photographs show the Cleveland 190 backfilling heavy spoil on pipelines.

Where to get: Cleveland Trencher Co., Department EE, 20100 St. Clair Ave., Cleveland 17, Ohio.

Subject: **Mining Equipment Line**

Content: A 16-page, two-color catalog features the complete package of International mining equipment—International Drott underground mining Skid-Shovels, crawler tractors, and Payhauler trucks and engines. Thirty-five photographs, plus five sketches, show International equipment in action on jobs such as stripping, surface and underground mining, non-metallic mining, building haul roads and cleanup and maintenance. Ask for catalog CR-665-I.

Where to get: International Harvester Co., Department EE, 180 N. Michigan Ave., Chicago 1, Ill.

Subject: **Portable Gravel Plant**

Content: A new 6-page folder describes the Pioneer model 32-S intermediate size portable duplex plant. Included in the colorful booklet is a large, two-page cut-a-way view of the plant showing flow of material from feeder to delivery conveyor. In addition, a series of line drawings depicting possible arrangements of screens, spouts and dampens, points out a flexibility in production unique in a plant of this type. The plant can be used to produce one size of material, to reject sand when required, or to produce road gravels, chips and remove sand at the same time. Outstanding 32-S plant features listed are low initial cost, light weight, large crushing and screening units and ready portability. Complete detailed specifications are given, including dimensions, weights and horsepower requirements.

Where to get: Pioneer Engineering Div., Poor & Co., Department EE, 3200 Como Ave., Minneapolis, Minn.

Subject: **Dipper Teeth**

Content: A 16-page catalog covers the new Simplex two-part tooth offered by Amsco. Over 400 tooth point and tooth adapter models are listed in a series of tables which prescribe the proper model to fit any size or make of dipper, bucket and backhoe. Well illustrated and well organized, the booklet provides a valuable reference work for shovel maintenance.

Where to get: American Manganese Steel Div., Department EE, American Brake Shoe Co., 389 14th St., Chicago Heights, Ill.

Subject: **A-C Engines**

Content: Two new catalogs cover the Allis-Chalmers G-149 and the G-226 engines and power units. Both catalogs, BU-528 (G-149) and BU-531 (G-226), tell the design, engineering and performance capabilities of the units with the help of numerous illustrations, including a center spread devoted to a cross section of the unit with descriptive marginal notes. Optional equipment available is also listed.

Where to get: Engine-Material Handling Div., Dept. EE, Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.

Subject: **2½-yd. Shovel**

Content: An 8-page catalog describes the new Manitowoc model 3100 2½-yd. shovel. Convertible to crane, clamshell, dragline, or trench hoe, the 3100's modern design provides many exclusive advancements. Features include disc type clutches, forced air ventilation; multi-stage torque converter; simplicity of design with only 14 gears and pinions; simple jack adjustment of crawler treads; dependable air or manual controls; and self-removing counterweight. Full specifications are listed.

Where to get: Manitowoc Engineering Corp., Dept. EE, Manitowoc, Wis.

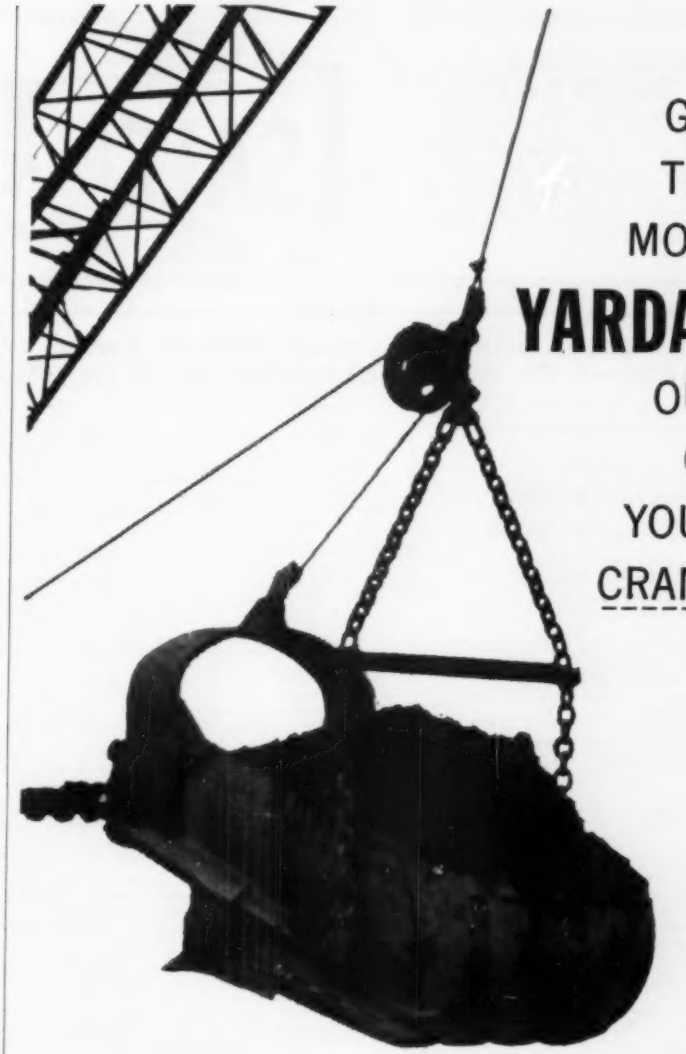
Notes from the Manufacturers

Industrial Brownhoist Corp., Bay City, Mich., has appointed John D. Sharp as district sales manager and John J. McClanahan as sales representative for its new district sales office at Birmingham, Ala. The new sales office, located at 9 Office Park, was opened on June 15.

LeTourneau-Westinghouse Co., Peoria, Ill., has selected L. B. (Phil) Philippi to head its newly-established truck sales division. As truck sales manager Philippi will direct worldwide merchandising activities of the new Haulpak line of end-dump and bottom-dump trucks. He will coordinate his sales activities through the company's existing domestic, export and government divisions. The Haulpak line includes three models, consisting of a 27 and 32-ton end-dump; and an 80-ton bottom-dump coal hauler. Philippi has a broad sales background. He comes to L-W from the Autocar Div., White Motor Co., where he was sales manager of off-road trucks for the past three years. Before this he was with the Dart Truck Co. for 10 years. His earlier experience was with the B. F. Goodrich Truck Tire Div.

South Bend Div., Curtiss-Wright Corp., South Bend, Ind., has announced the appointment of Edward C. Warsaw as district sales manager for Curtiss-Wright's line of construction machinery in Minnesota, Iowa, Wisconsin, Illinois, Indiana and eastern Missouri. The South Bend Div. manufactures a complete line of self-propelled and tractor-drawn scrapers ranging from 10 to 36 cubic yards heaped capacities and rear-dump models in sizes up to 35 tons.

Williams Bucket Div., McDowell-Wellman Companies, Cleveland, Ohio, has appointed Edgar W. Percy as sales manager. Percy has been with Williams since 1936, and served as assistant sales manager since 1957.



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SELECT

WILLIAMS BUCKETS

BUILT TO DIG

Quality clamshell and dragline buckets for every application

CONTACT YOUR WILLIAMS DEALER

Williams Bucket Div., The Wellman Engineering Co., 7000 Central Ave., Cleveland 4, Ohio, U. S. A. Branches, New York, 420 Lexington Ave., Chicago, 520 North Michigan Ave., Birmingham, Alabama, 2805½ Cahaba Rd.

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters is all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example: January closes December 10th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

LARGE SHOVELS, CRANES, DRAGLINES — 3 YDS. & UP

HEAVY EXCAVATION EQUIPMENT

Shovels—Cranes—Drills—Trucks

15-W Bucyrus-Erie Elec. Drag, 215', 13 yd.
9-W Bucyrus-Erie Elec. Drag, 160', 11½ yd.
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7400 Marion Elec. Drag, 175', 12 yd.
625 Page Diesel Drag, 160', 9 yd.
360-M Marion Elec. Drag, 175', 8 yd.
621-S Page Diesel Drag, 125', 7 yd.
200-W Bucyrus-Erie Diesel Drag, 125', 6 yd.
5-W Bucyrus-Erie Diesel Drag, 100', 6 yd.
2400 Lima Dragline, 130', 5 yd.
4500 Manitowoc Drag, 120', 5 yd.
120-B Bucyrus-Erie Elec. Drag, 115', 5 yd.
3900, 3500 and 3000 Manitowoc Cranes
111-M Marion Drag, 100', 4 yd.
1601 Lima 4 yd. Shovel/Drag
1055 P&H Drag, 80', 3½ yd.
1201 Lima Dragline, 85', 3 yd.
54-B Bucyrus-Erie Drag, 80', 2½ yd.
5560 Marion 26 yard Elec. Shovel
750-B Bucyrus-Erie 20 yd. Elec. Shovel
1050-B Bucyrus-Erie 20 yd. Elec. Shovel
5480 Marion 18 yd. Elec. H. L. Shovel
151-M Marion 7 yd. Elec. Shovel
170-B Bucyrus-Erie 6½ yd. Elec. Shovel
4161 Marion 6 yd. Elec. Shovel
120-B Bucyrus-Erie 4 yd. Elec. Shovel
111-M Marion 4 yd. Standard Shovel
54-B Bucyrus-Erie 2½ yd. Standard Shovel
Large selection of smaller shovels and draglines available
Model T-750 Reich Truck-Mounted Rotary and Down-the-Hole Drill
Euclid Trucks—Rear and Bottom Dump
Truck Cranes, Dozers, Scrapers, Front End Loaders, Drills, Buckets, Attachments and other miscellaneous equipment available.

FRANK SWABB EQUIPMENT CO., INC.
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LARGE WALKING DRAGLINES

Two—Bucyrus-Erie 7-W draglines, 140' boom, 7-yd. bucket. Serial No. 779 bought new in 1952 has Cooper Bessemer diesel drive. Serial No. 777, also bought in 1952, has Ward Leonard electric drive and has been worked only since 1953.

SIR ROBERT McALPINE & SONS, LTD.
80 Park Lane
London, W. 1., England

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

1 Northwest 80-D shovel and dragline.
2 Northwest No. 8 draglines.
1 Marion 151-M 6-yd. shovel.
1 Marion 4161 dragline equipped with 120' boom and 5-yd. drag bucket.

EXCAVATING ENGINEER
Box 3744
South Milwaukee, Wis.

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Bucyrus-Erie model 22-B heavy duty crane, dragline and clamshell, 51-20 combination. Powered by International model UD-325 diesel engine. Long and wide tracks. Like new condition. F.O.B. Louisville, Ky. $24,500.

Bucyrus-Erie model 22-B std. machine with backhoe. Powered by International model UD-14A diesel engine. Backhoe and unit in excellent condition. Two years old. #3233. F.O.B. Louisville, Ky. $21,550.

P&H model 255-A, ¾-yd. shovel, crawler mounted. Powered by Caterpillar model 315 diesel engine. #5918. F.O.B. Elizabethtown, Ky. $14,500.

Unit model 1020, ¾-yd. shovel. Powered by GMC 3-71 diesel engine. #292. F.O.B. Elizabethtown, Ky. $5,000.

Lorain model L50J. 1-yd. crane, dragline, clamshell combination. 70' boom pendant suspension, tagline and fairleads. Powered by Waukesha 140 GK gasoline engine. #686. F.O.B. Louisville, Ky. $14,000.

Lorain model TL-20 dragline excavator, crawler mounted with 22" wide treads, 45' boom, fairleads. Powered by Waukesha gasoline engine. #5920. F.O.B. Evansville, Ind. $8,500.

Unit model 514, ½-yd. crane and clamshell combination, 35' boom. Powered by GMC 2-71 diesel engine with ⅜-yd. Kiesler clamshell bucket. #4922. F.O.B. Elizabethtown, Ky. $4,250.

Lorain model L41, ¾-yd. crane, dragline, clamshell combination, 40' boom, tagline and fairleads, pendant suspension. Powered by Caterpillar model 318 gasoline engine. #9810. F.O.B. Louisville, Ky. $8,900.

Bucyrus-Erie model 10-B, 1952 model, ⅜ cu. yd. shovel, crawler mounted. Powered by Buda gasoline engine. #12815. F.O.B. Paducah, Ky. $7,500.

P&H model 455 clamshell excavator, crawler mounted, with 45' boom and powered by Caterpillar D-8800 diesel engine. #5919. $7,500.

ATTACHMENTS

Koehring model 304 shovel front attachment, ¾-yd. capacity. Like new condition. #398. F.O.B. Elizabethtown, Ky. $1,900.

Bucyrus-Erie model 10-B shovel front attachment, ⅜-yd. capacity. Excellent condition. #551. F.O.B. Elizabethtown, Ky. $850.

Bucyrus-Erie model 51 shovel front complete with attachments (new). Never has been used. Replacement cost $16,000. F.O.B. Louisville, Ky. $9,800.

Write—Wire or Phone Jim Waddell

BRANDEIS MACHINERY & SUPPLY CO.
P.O. Box 1705 Louisville 1, Ky.
MElrose 7-4741

Northwest 25 dragline excavator with 35' boom and GM diesel engine. Serial #14941. Price F.O.B. Greenville, N. C. $12,500.

Lorain TL-20 comb. shovel, dragline, backhoe with Cat D311 engine. Serial #18422. Price F.O.B. Greensboro, N. C. $10,500.

Link-Belt LS-58 comb. dragline, backhoe with GM engine. Serial #6A379. Price F.O.B. Charlotte, N. C. $13,500.

E. F. CRAVEN CO.
Greensboro, N. C.

Bucyrus-Erie model 51-B shovel, equipped Cat D-337-F engine, Torcon converter. Only 5,000 hours on engine and machine maintained excellent condition. Price F.O.B. siting Beaver Dam, Ky. $45,000.

EXCAVATING ENGINEER
Box 3745
South Milwaukee, Wis.

SMALL SHOVELS, CRANES, DRAGLINES — UP to 2½ YDS.

SHOVELS

Northwest model 80-D, 2½-yd. shovel with 30" tracks, 25' boom, 22'6" dipper stick, powered by a Murphy diesel engine. Reconditioned. $42,500.

Link-Belt Speeder mod. LS85, ¾-yd. capacity, 50' boom, 2 sheave boom point, 20" pads, powered by Cat D318 diesel engine. Subject to inspection. $5,500.

SHOVEL ATTACHMENTS

Bucyrus-Erie tunnel shovel attachment for a 22-B consisting of 14' boom, 12'10" stick, 1 cu. yd. rock dipper, crowd drum, sprocket and crowd chain. Excellent condition. $3,500.

Bucyrus-Erie 71-B—Two tunnel front-end dipper handles, 17'6" length. Job completed in 1 month. Owner has no further use for these attachments. Will sell reasonably. Original cost $2,000 each.

TRUCK CRANE

Lima 44T truck crane, 25-ton clamshell and lifting crane, 80' boom, 30' jib, Rudomatic tagline, Dart carrier, 9' wide, 10—12:00 x 24 14 ply tires, Waukesha, very good condition, 30 day guarantee. $30,000.

SCRAPERS

Caterpillar No. 80 scraper, 20-yd. cap., tires and scraper in good condition. $10,500.

Caterpillar No. 70 scraper, 11-yd. cap., tires and scraper in good condition, $7,500.

LeTourneau LS scraper, 4 wheel, 11-yd. cap., 2—14:00 x 20:00 16 ply tires front, 2—16:00 x 20:00 16 ply tires rear, good condition. $4,500.

TRACTOR

Caterpillar Model D8, direct drive, diesel tractor, 14A series, with 24" tracks, crankcase guard, electric starter, oil clutch, pull hook, canopy top, w/Caterpillar 8S straight bulldozer blade and Caterpillar No. 25 DDPCU. Reconditioned. 30 day bonded guarantee. $25,000.

LOADER

Caterpillar No. 977 Traxcavator, with 18" triple grouser tracks, full crankcase guard, oil clutch and a general purpose bucket 2¼-yd. with teeth. Reconditioned, 30 day bonded guarantee. $18,500.

TRENCHER

Cleveland No. 95 trencher, option 5, 16" buckets, 21½" cut, 10" tracks, powered by a Continental gas engine. Trencher reconditioned. 30 day guarantee. $6,600.

Subject to inspection and prior sale.

H. O. PENN MACHINERY CO., INC.
140th St. & East River CYpress 2-4800
New York 54, N. Y.

Lima HD34 Paymaster clamshell-crane, 30" treads, serial #33109, pin connected boom, ¾ GP clamshell bucket, Caterpillar D318 engine. Outstanding condition. Only 600 hours use. $17,500.

Bucyrus-Erie model 22-B, serial #79795, combination ¾-yd. shovel and crane, 60' boom with pendant suspension, Caterpillar D318 diesel engine. Machine available as is or rebuilt.

Insley crawler mounted backhoe, type "K", 24" bucket, standard crawlers, serial #6923, Waukesha gas engine, year 1955. Excellent value. $7,850.

Lorain model L40, serial #15639, combination shovel, backhoe, 50' crane boom with fairlead and Rudomatic tagline. Fair condition. $5,000.

Bucyrus-Erie Hydrohoe attachment for H-3 Hydrocrane complete with 18" general purpose dipper, 20" utility dipper and all necessary fittings. Very good condition. $1,000.

BINDER MACHINERY CO.
Brighton St. Union, N. J.
MUrdock 8-0060

SMALL SHOVELS, CRANES, DRAGLINES — UP TO 2½ YDS.

Bucyrus-Erie crowd shovel attachment for model 15-B, ½-yd. excavator. Very good condition. U-197. $1,950.

Bucyrus-Erie model 15-B ½-yd. backhoe. Cat diesel D-315 has electric starter. Been through our shop and in excellent condition. Has grouser type pads. U-339.

Dragline bucket for Bucyrus-Erie 15-B. ½-yd. capacity. Good condition. U-142. $300.

Northwest model 25, ¾-yd. shovel, dragline and hoe. 40′ crane boom and cambered type hoe boom. 30″ track shoes. S/N 16806. This late 1955 machine is in excellent condition and guaranteed. U-130. $17,500.

Northwest crowd shovel attachment for model 25, ¾-yd. New and unused. U-198. $1,950.

Unit model 10-20 backhoe, includes crowd shovel, dragline, dragline bucket and clamshell bucket. S/N 1719. Complete with extra engine and spare parts; engine overhauled. Good condition. U-249. $7,950. F.O.B. Idaho Falls.

Link-Belt Speeder model LS-52 crowd shovel. Powered by Cat D-315 diesel. Very good condition. U-276. $10,750.

Wellman 2½-yd. dragline bucket, model DXL, S/N D-1789. Has never been used. $1,200.

Call, wire or write today for information about these and our many other items of used equipment.

LANG CONSTRUCTION EQUIPMENT CO.
P. O. Box 1646 — Salt Lake City, Utah
Phone: DAvis 2-1241 — TWX No. SU-278

AT HOUSTON

1—Bucyrus-Erie 15-B hoe, S/N 59821, I.H.C. UD-9 engine, tractor type tracks.

2—Bucyrus-Erie 22-B (Standard) hoe, S/N 119144, 119146, Esco ¾-yd. buckets, I.H.C. UD-525 engine.

1—Quickway E dragline, S/N 1278. 25′ boom, I.H.C. UD-9 engine, mounted on I.H.C. 2-184 tandem axle (single drive) truck, reconditioned.

1—Bucyrus-Erie 22-B dragline (standard), S/N 111112, 35′ boom, Cat D-318 engine, 30″ track shoes, wide and long crawler mounting, rebuilt.

1—Insley K-12, ½-yd. dragline, 35′ boom, 24″ shoes, Chrysler gas engine, Hendrix ½-yd. bucket, S/N 10813.

1—Lorain TL-25, ¾-yd. backhoe, S/N 23276, Cat. D-315 engine, 22″ shoes.

1—Bucyrus-Erie 1-yd., BL, Hendrix ½-yd. LS, Hendrix ¾-yd. TS buckets.

AT DALLAS

1—Bucyrus-Erie 15-B hoe, S/N 59803, Cat. diesel engine, good condition.

2—Bucyrus-Erie 22-B hoes, reconditioned.

1—Lorain 41, dragline, S/N 11432.

1—Insley L dragline.

1—Northwest 25 dragline, S/N 11313, reconditioned.

Backhoe attachments for 362, 1½-yd. Marion; LS-50 Link-Belt; and T-35 Bantam.

Shovel attachment for Bucyrus-Erie 10-B & 38-B.

Dragline boom for K-12 Insley.

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305 Exposition Ave.	**Hiway 80**
Dallas, Tex.	**Greggton, Tex.**
2424 Clovis	**2619 Texas Ave.**
Lubbock, Tex.	**Houston, Tex.**

1—705 P&H dragline, 2-yd. w/55′ boom.

1—Northwest model 25 backhoe.

1—Model H Scoopmobile, hydraulic loader, ¾-yd., 1955 model, excellent condition.

1—Model C Scoopmobile 22′ tower, pallet fork or bucket, excellent condition.

1—Model 41 Lorain ¾-yd. crane with Cat D4600 engine, 1945 model, 45′ boom, track type.

1—Model 10-20 Unit crane mounted on Dart truck, excellent.

2—365 cu. ft. Gardner-Denver air compressors. Good.

1—1½-yd. Kiesler clamshell bucket—rehandling, like new.

1—HD-20 Allis-Chalmers with push plate.

1—Model 300 International utility tractor with Wain-Roy backhoe, 1956 models, both in very good condition.

1—Model 12 Caterpillar motor patrol, large front wheels, good condition. New recap tires—all wheels.

1—Esco ¾-yd. Orange-Peel bucket, excellent.

1—365 cu. ft. LeRoi air compressor, 1956 model, P&H diesel engine.

1—LaCrosse tandem axle cowboy trailer, air brakes, 23-ton, 8:25 x 15 tires. Tires 50%, trailer good.

CONTRACTORS SUPPLY
620 E. 18th St.
Kansas City, Mo.

MISCELLANEOUS EQUIPMENT

Cedar Rapids 18x36 variable twin jaw crusher mounted on semi-trailer with fifth wheel pin and 8—9:00 x 20 tires. Overall dimension, 41′ x 8′ wide and 12′ high. 4′ x 10′ vibrating type scalping screen. 27′ long x 30″ belt discharge conveyor, IH U-24 power unit is skid mounted and has outboard bearing. Overall condition is very good. U-389.

Joy heavy weight class 58-BH 7⅞″ blast hole drill, 1951 model. Bargain price. Inquire for further details.

International Payscraper model 2T-75. 55,000 lb. rated capacity and wide base tires. Excellent condition. U-135. $29,500.

Carco model "J" logging winch. 1955 model, good as new. U-65. Only $2,100.

Barber-Greene model 879-A asphalt finisher. S/N 49-67. Powered by LeRoi gas engine. Has been completely rebuilt & is in excellent condition. U-170. $9,200.

Adnun blacktop paver, S/N 1462. Has been repaired and is in good operating condition. U-5. $1,400.

Cleveland wheel ditcher, "Baby Digger". S/N 306. Powered by Hercules gas engine. Has 4½′ digging depth. Good working condition. U-1. $1,450.

Parsons model 88 trench liner has 7″ paddles on chains, 14″ paddles on extra chain. Gas engine. Good condition. F.O.B. Idaho Falls, Idaho. U-373. $6,250.

Be-Ge ST-770 hydraulic scraper, 6-yds. struck capacity. Excellent condition. U-246. $2,975.

Superior pipe tongs as good as new. U-176. $99.50.

Fruehauf trailer (remodeled army surplus) good condition. U-28. $1,250.

Barber-Greene trencher with 5″ cutting bits. Wisconsin gas engine. U-372. Bargain price. $3,750.

Austin-Western model 99 motor grader. Has scarifier and snow plow. IH UD-16 diesel engine. Good condition. U-354. F.O.B. Idaho Falls, Idaho. $4,500.

Call, wire or write today for information about these and our many other items of used equipment.

LANG CONSTRUCTION EQUIPMENT CO.
P. O. Box 1646 — Salt Lake City, Utah
Phone: DAvis 2-1241 — TWX No. SU-278

Portable, all steel barge-mounted dredge, 18′ x 56′ barge, knocks down to 4 sections. 5 drum dredge hoist, model 600 Cummins diesel on 10″ AMSCO pump. G-M 4-71 diesel operates generator and high pressure water pump. 36′ ladder with rotary cutter. 1,500′ of 10″ pipe—more available. Rebuilt and guaranteed. Financing available. $37,500. Call:

J. P. WAITE, INC.
3304 W. Pierce St. — Milwaukee, Wis.
EVergreen 4-1900

Model LS-51 Link-Belt backhoe with Waukesha 6BZ-212A engine. $8,500.

Super 99 Austin-Western grader with GMC-471 diesel engine with torque converter. $10,000.

40″ x 20″ Lippmann roll crusher—less power. $7,800.

Nordberg 22″ intermediate cone crusher with 35 HP motor. $7,950.

McKiernan-Terry model DE-30 diesel hammer. $12,000.

W. T. WALSH EQUIPMENT CO.
12750 Berea Rd.
Cleveland 11, Ohio

DRAGLINE EQUIPMENT

Bucyrus-Erie 70′0″ dragline equipment for 54-B (like new condition) including fairlead, lagging, high A frame and 10,000 pounds counterweight, less ropes or bucket. Will sell at sacrifice.

OSAGE COAL CO.
Mr. Joe Lake, Sup't
Steamboat Springs, Colo.

2—Joy 58BH rotary blast hole drills. 440-volt, 3-phase, 60-cycle electrical equipment. Both machines bought new 1951. Tools and spare parts available.

EXCAVATING ENGINEER
Box 3743
South Milwaukee, Wis.

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200 Tons of pick steels, rock drills, tractor spares 50% of list price.
MERTON ENGINEERING CO., LTD.
Feltham, Middlesex, England

MISCELLANEOUS EQUIPMENT

Bituminous equipment—Barber-Greene model 879-A bituminous finisher, powered by LeRoi model D-201 gasoline engine. Engine has been completely overhauled, track rollers are new. Burner assembly overhauled. #1285. $9,300 F.O.B. Louisville, Ky.

SPECIAL—EARTH MOVERS

Allis-Chalmers model TS360 motor scraper. 15-yds. struck, 20-yds. heaped. Powered by A-C TD-844 diesel engine. Motor scraper in good operating condition. #4921. F.O.B. Evansville, Ind. $19,500.

Euclids (3) model 23TDT-36SH, SS18 series. 18-yd. capacity with factory sideboards. Powered by GMC 6-110 diesel engines with torque converters. Tires: 29.5 x 25, 28 ply. All three units in excellent condition. F.O.B. Louisville, Ky. $22,500 each.

Euclid model 27FD, 15 ton rear dump, powered by Cummins diesel engine. Engine overhauled. Good tires. Good operating condition. F.O.B. Elizabethtown, Ky. $12,500.

Euclid model 5FD, 15 ton rear dump, powered by Cummins diesel engine. Excellent tires 75% good. Engine in excellent condition. F.O.B. Elizabethtown, Ky. $9,000.

Ateco model C-115, 11½ to 13-yd. tractor drawn scraper. Excellent condition. #491. F.O.B. Elizabethtown, Ky. $4,950.

GENERATOR SETS

2—Caterpillar diesel electric generator sets 200 KW, 440V—3 phase—60 cycle. Powered by Caterpillar model 375 diesel engines, complete with floor type panel board with standard instruments and air starting equipment. Generator serial Nos. 55C8499 & 8500. Engines serial Nos. 18B156 & 158. Less than 2,800 hours operation. (Replacement cost $27,000 each) $12,000 each F.O.B. Louisville, Ky.

Write, wire or phone Jim Waddell.

BRANDEIS MACHINERY & SUPPLY CO.
P. O. Box 1705 — Louisville 1, Ky.
MElrose 7-4741

COMPRESSORS AND AIR TOOLS

2—Joy crawler drills, drill class CTM1. These two drills are mates, both have had only one season's use. There is a good stock of extra parts with these drills.

2—Gardner-Denver wagon drills, each have drifter part D99D. Both have 10′ masts for 8′ steel. Mounted on pneumatic tires. Located at Casper, Wyo. branch.

1—Chicago Pneumatic 365 RD2 portable, 4 pneumatic tires—machine in very good condition.

1—Ingersoll-Rand DR-315, portable mounted on 4 pneumatic tires—machine like new. Located at Casper, Wyo. branch.

EXCAVATORS

1—Koehring model 304 S/N 8204, equipped as a shovel—machine is in good operating condition. Located at Casper, Wyo. branch.

1—Bucyrus-Erie 38-B shovel or backhoe powered with Cat. engine. This machine has been thoroughly reconditioned in our shops. Located at Denver.

1—Bucyrus-Erie 22-B dragline powered by GM 3-71 engine. This machine is in good operating condition. Located at Casper, Wyo. branch.

ASPHALT EQUIPMENT

1—848 Barber Greene asphalt plant, equipped with feeder, bucket elevators, rotary drier, gradation unit, dust collector, pug mill, Cleaver Brooks steam boiler, GM model 4-71 engine, Caterpillar model D13000 engines, also electric motors, wiring cables and panels that make this plant complete. We welcome inspections of this plant.

TRUCKS

3—Euclid rear dumps standard equipped with quarry bodies, 2-yd. top extensions and rock ejector bars. Two of these trucks have less than 400 hours on them and the other has 1,000 hours. These are one of the better buys in used equipment offered anywhere.

TRENCHERS

1—Cleveland ditcher model 320 powered by Caterpillar engine model D339—24″ pads, 35″ bucket wheel, 35″ conveyor belt. This machine has between 500 and 600 hours on it and it can be bought on a sizable discount.

THE COLORADO BUILDERS' SUPPLY COMPANY
1534 Blake St.
Denver 2, Colo.

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1 Model TD-6 International tractor dozer shovel, with Bucyrus-Erie front end loader, serial #50345. Price $1,500.

Joe Mesalam
Alexandria, Indiana

MISCELLANEOUS EQUIPMENT

ENGINES

1—New unused Buda 6B273 6-cyl. 3¼ x 4½" fan to flywheel gasoline engine—serial 374583—1335 RPM no load—38.7 HP @ 1,200 RPM full load—F.O.B. Erie, Pa.

5—New unused Buda 6B230 6-cyl. 3⅞ x 4½" gasoline engines—1,325 RPM no load—29.8 HP @ 1,200 RPM full load—complete with radiator, Twin Disc power take off, electric starting and 6V battery—serial Nos. 374114, 374640, 374641, 375110 and 375112—F.O.B. Erie, Pa.

1—New unused Waukesha ICK 4-cyl. 2½ x 3½" gasoline starting engine—61 cu. in. displacement—serial 1029495—F.O.B. South Milwaukee, Wis.

1—Slightly used (about 200 hrs.) Continental ED-201 4-cyl. 3⅝ x 4⅞" diesel engine—naturally aspired—1,700 RPM no load—35.4 HP @ 1,600 RPM full load—complete with radiator, power take off, electric starter, chain sprocket & misc. control equipment—F.O.B. Evansville, Ind.

1—New unused IHC U-1 4-cyl. 2⅝ x 2¾" gasoline power unit—fully enclosed—16.8 HP @ 2,500 RPM full load—59.5 cu. in. displacement—SAE #5 flywheel housing—less PTO—F.O.B. South Milwaukee, Wis.

1—Rebuilt IHC U-1 4-cyl. 2⅝ x 2¾" (same as above)—never operated after rebuilt—F.O.B. South Milwaukee, Wis.

1—Used Cummins LRI-600 6-cyl. 7¼ x 10" diesel engine—serial 89420—good condition—suitable for 88B—F.O.B. San Francisco, Calif.

Above engines offered "as is", F.O.B. the indicated locations, subject to withdrawal or prior disposition. Will sacrifice for quick sale.

J. E. Smart
BUCYRUS-ERIE CO.
South Milwaukee, Wis.
Phone: SOuth 2-0900

New—⅞-cu. yd. type "BM" medium duty dragline buckets complete with all fittings. Weight—1,900 pounds each. Reduced price—$1,140 each. F.O.B. Evansville, Ind.

BUCYRUS-ERIE
South Milwaukee, Wis.

1—Reconditioned—⅞-cu. yd. type "BM" medium-duty dragline bucket complete with all fittings. Weight—1,750#. Special reduced price $900. F.O.B. Evansville, Ind. John T. Aspel.

BUCYRUS-ERIE CO.
South Milwaukee, Wis.

3—½-cu. yd. type AX medium-duty dragline buckets. Complete with all fittings. Weight—950 lbs. ea. Reduced price—$620 ea. F.O.B. Evansville, Ind.

BUCYRUS-ERIE COMPANY
South Milwaukee, Wis.

1—Reconditioned—3½-cu. yd. type "BM" medium duty, solid type dragline bucket complete with all fittings. Weight—5,600 pounds. Special reduced price—$2,750. F.O.B. Evansville, Ind.

BUCYRUS-ERIE CO.
South Milwaukee, Wis.

1—2-cu. yd. type TS Hendrix medium-duty dragline bucket complete with all fittings. Weight—3,550 pounds. Reduced price—$1,500. F.O.B. Evansville, Ind.

BUCYRUS-ERIE CO.
South Milwaukee, Wis.

Model 25 Northwest shovel front—new $3,000.

E. J. Knepfle's Sons
520 Riverside Dr.
Newport, Ky. CO. 1-3035

MISCELLANEOUS EQUIPMENT

1—Michigan C-16, ½ cu. yd. hoe, 22" dipper, 9'9" crawlers, 20" wide, Hercules gas engine JXD #1742230, machine #3797, 4 years old.

1—Koehring 303—¾-yd. hoe, 30" dipper, 10'6" crawlers, 24" wide, Waukesha gas engine #484150, 4⅝ x 5¼", serial #2337.

1—Worthington 16-S concrete mixer on 4 pneumatic tires with power skip and water tank, serial #5548 powered by Wisconsin VF-4 gas engine, 4 years old.

1—Osgood 200—½-yd. hoe with 22" dipper, 11' crawlers, 22" wide, powered by Continental gas engine, machine #6285, 5 years old.

1—International TD-14 crawler loader model 14K3 with Drott skid shovel, 2½-yd., serial #B-2463, only 1½ years old, excellent shape, 1500 hours.

1—Bucyrus-Erie 15-B hoe attachment with ½-yd. dipper, 34" wide with side cutter straight boom—like new.

1—Bucyrus-Erie 15-B ½-yd. shovel attachment—perfect.

1—Wiley PM215 Patchmobile portable asphalt patching unit on two pneumatic tires, complete with rotary dryer. This unit is new.

1—Ruhr M-1½-yd. heavy duty grapple, new, excellent buy.

1—Wayne 36" rider industrial vacuum pick-up power sweeper, demonstrator, 2 years old.

1—LeRoi 315 air compressor on 4 pneumatic tires, 7 or 8 years old.

2—CMC Jetcretes with all accessories. Excellent condition, practically new with all extra accessories.

1—Baker 3,300 gallon bulk tank trailer, single axle.

1—Ross 6-ton pneumatic tired fork lift truck, 10' mast, 14' lift.

1—Bucyrus-Erie 15-B positive crowd shovel, 15'6" boom, 12'6" handle, ½-yd. cast iron dipper including dragline and clamshell equipment consisting of 50' boom, complete dragline equipment, also tagline equipment with rope, closing and lowering ropes, drum lagging, no clamshell bucket or drag bucket included. Fully enclosed steel cab, independent power boom hoist, 20" wide treads, Buda 6-cyl. 3⅛ x 4¼" HP-326 gasoline engine with electric starter. 2,900# cast iron ballast, serial #51572.

1—Used Kennedy Van-Saun revolving scrubber washer screen, 48" diam. x 21'0" long, in excellent shape and complete with all new parts including extra scrubber sections and new sizing screens.

1—Insley type L, ¾-yd. hoe, GM series 3-71 diesel engine, serial #7009. Good working condition.

1—Bucyrus-Erie 20-B ¾-yd. positive crowd shovel, powered by 40 HP electric motor.

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Timonium Rd. & Harrisburg Expressway
Timonium, Md. VAlley 5-5100

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MISCELLANEOUS EQUIPMENT

International model TD-24 tractor, serial No. TDE5394, equipped with Bucyrus-Erie straight blade bulldozer, Bucyrus-Erie model P-29 cable control, seven roller frame, 22" grouser tracks. Good condition. Price on application.

International model TD-14 tractor, serial No. TDF10771T14, equipped with Bucyrus-Erie hydraulic controlled straight bulldozer, electric starting, lights, crankcase guard, roller guards. Good condition. $5,200.

Allis-Chalmers model HD-20 tractor, serial No. HD20H3461, equipped with torque convertor, crankcase & roller guards, electric starter, push plate, powered by GMC engine, Caterpillar model 25 rear mounted cable unit. Good condition. $9,250.

Allis-Chalmers model HD-20 tractor, serial No. HD20H-5931, powered by GMC engine, torque convertor, crankcase & roller guards, electric starting, push plate, Caterpillar model 25 cable control. Fair to good condition. Price on application.

Allis-Chalmers model HD-20 tractor, serial No. HD20H5759, powered by GMC engine, torque convertor, crankcase & roller guards, electric starting, push plate, Caterpillar model 25 cable control. Fair to good condition. Price on application.

Allis-Chalmers model HD-21 tractor, serial No. HD21A8528, equipped with Gar Wood model 281 rear mounted cable control. Gar Wood straight blade bulldozer, roller guards, crankcase guard, lights, 26" grouser tracks. Good condition. $17,500.

Allis-Chalmers model HD-21 tractor, serial No. HD21A8289, equipped with Gar Wood model CT214 straight blade bulldozer. Gar Wood rear mounted cable control, electric starting, crankcase guard, roller guards, lights. Good condition. Price on application.

Allis-Chalmers model HD-19 tractor, serial No. 1603, equipped with track roller guards, electric starting, torque convertor. Fair condition. $5,200.

Allis-Chalmers model HD-14C tractor, serial No. HD14C6085, equipped with Baker hydraulic controlled angle bulldozer, track roller guards, powered by GMC engine. Tractor in fair condition with good engine. $1,500.

International model TD-14 tractor, serial No. TDF21658T2, equipped with 20" grouser tracks, Cardwell hydraulic angle blade, Cardwell model PBI pipelayer. Fair to good condition. $5,500.

International model TD-14 tractor, serial No. TDF20852T2, equipped with 20" grouser tracks, Cardwell model PBI pipelayer, less boom, counterweights, crankcase guard. Fair to good condition. $3,700.

Austin Western model super 99 motor grader, serial No. 99SW570, powered by GMC engine, with electric starting, cab, power steering, 6 wheel steering & drive, hydraulic sideshift, torque convertor, lights, 12' blade, scarifier. Good condition. Has had little use. $14,750.

Galion model T-500 motor grader, serial No. 1350, powered by Cummins engine, equipped with cab, scarifier, torque convertor, power steering, hydraulic sideshift, lights, electric starting, four wheel brakes, 13' blade, 14:00 x 24 tires, front & rear. Excellent condition. A one owner machine, low hours. $9,500.

Quickway shovel attachment for use with model E machine. 4/10 cu. yd. Fair condition. $950.

Quickway model F backhoe attachment, serial No. 521, 4/10 cu. yd. for use with Model E machine. Fair condition. $450.

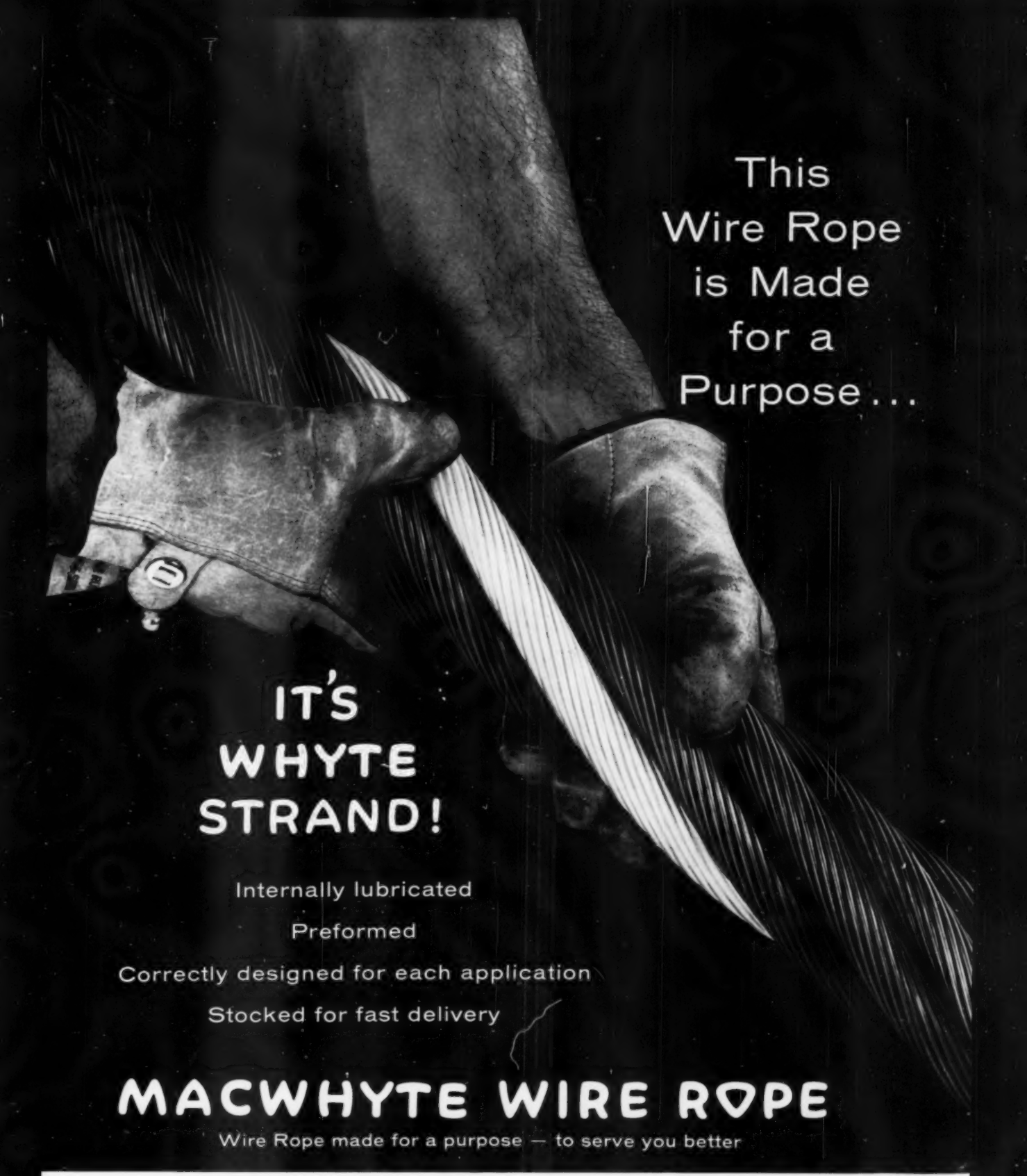
Cummins model LI diesel engine, serial No. 55702, equipped with radiator, steel skid base, enclosed clutch, air starting motor, but has no fuel tank. Fair condition. $4,250.

R. L. HARRISON CO., INC.
1801 4th St., N.W. Albuquerque, N. M.
Phone 7-8811

EQUIPMENT WANTED

Wanted—Shovel front for Bucyrus-Erie 44-B.

CONTRACTORS SUPPLY
620 E. 18th St.
Kansas City, Mo.



For shovel hoist rope, dragline, clamshell crane rope, boom hoist line, dozer rope, scraper rope, contractor's hoist and derrick rope, and winch line.

157

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Manufacturers of a thousand and one different wire ropes, slings, and cable assemblies
Distributed and stocked throughout the United States

NEW DW21 SERIES G "LOADS FAST AND HAULS FASTER"

Supt. Ruben Hawkins, Harbaugh & Wright, Inc., Enid, Okla.

More production, faster cycles, more profit—that's the report on the new Caterpillar DW21 Series G Tractor with new No. 470 LOWBOWL Scraper.

As Ruben Hawkins (see above) sums it up from his experience on a 2½-mile Interstate Highway job in Oklahoma:

"This new DW21 has plenty of power. It loads fast and hauls faster."

The contracting firm of Harbaugh & Wright, Inc., brought in four new DW21s to move 1,263,218 yd. of dirt on this project. On the first 10-hour day, they handled 484 loads of 19 cu. yd. on an 1,100-ft. haul. And they kept up this blistering pace to finish the job 40 days ahead of schedule!

For the down-to-earth facts on this great new heavy-duty wheel rig, see the box below. Note that the new DW21 Series G gives you important increases in horsepower, rimpull and scraper rating. Standard tires have also been increased to 29.5-29 (28-ply rating) to handle the increased scraper capacity.

Your Caterpillar Dealer has the complete story on the important new DW21 Series G—and he'll prove what he says with a demonstration on your job.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR

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NEW DW21 SETS NEW STANDARDS OF EARTHMOVING

Cat DW21 Series G Tractor with No. 470 Scraper is pushloaded by Cat D9 Tractor on Interstate Highway job in Oklahoma.

NEW DW21-NO. 470

	Series G	Series B
NEW HP	—345 (maximum output)	— increased 8%
NEW RIMPULL	—49,100 lb. (maximum)	— increased 12%
NEW SPEEDS	— increased rimpull provides up to 20% faster travel speeds under similar haul road conditions	
NEW CAPACITY	—19.5 cu. yd. (struck)	— increased 8%
	27 cu. yd. (heaped)	— increased 8%

Corresponding increases have been made in the new four-wheel DW20.